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Clinical and Laboratory Correlation of the Transaminase Test, an Analysis of 111 Patients For a Period of Thirteen Months

• The transaminase test is useful in making a differential diagnosis on patients with a clinical picture compatible with myocardial infarction, but whose electrocardiographic findings are not confirmatory. It is also of equal aid in the diagnosis of hepatic disease.

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DISEASE processes frequently result in a measurable alteration or exaggeration of one or more of the body physiologic enzyme functions, and studies of these systems in cooperation with the clinician is an integral function of the diagnostic laboratory.

Laboratory tests in the study of patients for myocardial disease have not been very specific. With the advent of anticoagulant therapy for coronary occlusion, and its advantages and dangers, it is most important in the cardiac patient to establish the presence or absence of myocardial infarction as opposed to coronary insufficiency. Likewise, in reference to the liver, the establishment of the presence of hepatic cell damage is equally important but is less of an emergency than in the patient being studied for coronary artery disease. The serum transaminase test (SGO-T) is now widely used and is of value, we believe, in the study of patients for cardiac or hepatic pathology.

The enzyme glutamic oxalacetic transaminase is present at a relatively constant level in the serum of humans and animals, the enzyme being found in concentrated amounts in the myocardium, muscle, brain, liver, kidney, testis and lung.[1] Diseases of these organs effect the release of increased amounts of transaminase into the circulation, and the enzyme level in the serum can be measured as one index of pathology in these organs.

The term "transaminase" refers to the property of the enzyme glutamic oxalacetic transaminase (GO-T) to promote a transfer of the ammonia radicle (NH_3) in the following chemical reaction: aspartic acid plus alpha ketoglutaric acid

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in the presence of GO-T yields oxalacetic acid and glutamic acid. The oxalacetic acid formed decomposes to pyruvic acid. In the test procedure a dye dinitrophenylhydrazine is added and in the presence of sodium hydroxide this compound turns an intense brown which may be measured by spectrophotometer or colorimeter. The values are expressed in units: one unit represents the formation of chromogenic material equivalent to 1 gamma pyruvate. The normal transaminase level is below 40 units, a value to 40-50 units is considered a borderline result, and a value of above 50 units is considered an abnormal increase, as reported by LaDue et al.[2]

It is important in a diagnostic laboratory to evaluate the results of such a critical test as the transaminase study, and to make comparisons with the results of others cited in the literature. This study was begun originally in preparation for a Schumpert Sanitarium Clinico-Pathological Conference at which the importance of the test was emphasized, and the clinician (JWW) pointed out the need for a study of our own cases. Therefore, we have examined the records of 111 patients on whom one or more transaminase tests were done in a recent thirteen months period, January 1958 through January 1959. The purpose of this material is to present a brief analysis of the clinical conditions of this group of 111 patients in correlation with the transaminase study.

Materials, Results and Discussion

The 111 patients studied for a period of thirteen months were selected simply on the basis of having had a transaminase study performed in the laboratory of this hospital, and having been an indwelling patient. Outpatients were excluded. The patients had been studied for either cardiac or hepatic pathology; hospital records were assayed by both of us, and the cases were grouped into the following categories.

Group I. Patients Studied for Heart Disease—Transaminase Level Above 50 Units, Clinical Course and Electrocardiogram Diagnostic of Myocardial Infarction.—24 Patients.

The transaminase values in these 24 patients ranged from 50 to 550 units. All had electrocardiographic tracings read as diagnostic of myocardial infarction. The enzyme tests were run from on the first day of clinical illness to as late as the seventh day of illness. In 4 cases two or more studies for transaminase reached a level above 50 units after an original normal (less than 40 units) or border-line value (from 40-50 units). In the other 20 patients the test was above 50 units on the first examination. Prognosis for survival, in our experience, was not indicated by the degree of elevation.

Discussion: Four of the 24 patients of Group I were admitted with clinical impressions other than myocardial infarction, and included were diagnoses of coronary insufficiency (3) and congestive heart failure secondary to hypertension (1). The transaminase test in these 4 patients was of value in establishing the presence of myocardial infarction. The problem is illustrated by the following case:

> WF, age 76, admitted October 8, 1958, for acute congestive heart failure attributed to hypertension. On the day of admission, the serum transaminase level was 45 units, and the electrocardiogram was suggestive, but not diagnostic of infarction. Subsequent daily tests revealed levels of 260,130 and 70 units. The diagnosis of myocardial infarction was confirmed by electrocardiogram on the second day of hospitalization, at which time a serum transaminase level was 260 units.

In the other 20 patients of Group I, the clinical and electrocardiographic diagnosis of infarction was correlated with elevated serum transaminase levels.

Group II. Patients Studied for Heart Disease—Transaminase level less than 40 units.—47 patients.

This group was constituted largely of patients who had a final diagnosis of coronary insufficiency due to arteriosclerosis, but many other interesting conditions were observed. The transami-

nase values ranged from 6 to 35 units, and diagnoses are shown in Table 1.

TABLE 1
GROUP II—DIAGNOSES

Coronary Artery Insufficiency Due to Arteriosclerosis	25
Arteriosclerotic Heart Disease with Congestive Heart Failure	3
Hypertensive Cardiovascular Disease with Congestive Heart Failure	3
Idiopathic Pericarditis	2
Cervical Arthritis	3
Duodenal or Gastric Ulcer	5
Gastro-enteritis	4
Pylorospasm	2

Discussion: In reference to these 47 patients of Group II, the clinical findings were similar to, and often identical to, those patients in Group I who had confirmed diagnoses of myocardial infarction. In 20 of the 47 patients of Group II, the admitting impression was myocardial infarction, and in another 16 patients, the admitting impression was coronary insufficiency. Of the 20 patients with a clinical impression of myocardial infarction, 13 had abnormal electrocardiograms of a type that created confusion as to the diagnosis of infarction of the myocardium. In 10 of these there were "T" wave alterations, minor "ST" segment changes, or residual evidence for previous infarction; in 2, bundle branch block was present, and in 1 a supraventricular tachycardia was present. The problem is illustrated by the following case:

WF, age 49, admitted January 7, 1959, with chest pain of several hours' duration. An electrocardiogram showed left bundle branch block, and the transaminase level on the second hospital day was 12 units. A diagnosis of coronary insufficiency was later substantiated when the electrocardiogram reverted to a pattern of "lateral ischemia".

Group III. Patients Studied for Heart Disease—Transaminase level 50 units or greater, but not confirmed as myocardial infarction.—8 patients.

These 8 patients had transaminase values of 50, 52, 53, 61, 83, 94, 104 and 122 units. All were suspected of having myocardial infarction. Six patients were signed out as coronary insufficiency due to arteriosclerosis, one as pericarditis with myocardial ischemia, and one had a duodenal ulcer, but his electrocardiogram revealed a complete AV block. All 8 patients had electrocardiographic abnormalities, but the changes were not conclusive of myocardial infarction.

Discussion: In reviewing the records of the 8 cases of Group III, in retrospect it is probable that, in these patients, some degree of myocardial infarction may have occurred. All of the 8 had electrocardiographic abnormalities that were borderline or equivocal, and it is likely that if the electrocardiographic changes had been more definite, the patients would have been signed out as myocardial infarction. The following case is illustrative:

WM, age 48, admitted September 5, 1958, following acute onset of chest pain, relieved somewhat by nitroglycerin. On the first, second, third and fourth hospital days, the transaminase levels were 50, 61, 40 and 26 units. The electrocardiogram revealed minor degrees of ST segment depression in chest leads, and questionable ST segment elevation in leads II, III and AVF. Also, there were signs of old posterior infarction. The patient was signed out as coronary insufficiency.

Group IV. Patients Studied for Heart Disease—Transaminase levels less than 40 units, but diagnosed as myocardial infarction.—5 patients

This important group of 5 patients had electrocardiographic changes diagnostic of myocardial infarction and revealed transaminase levels within a range of normal, as in Table 2.

TABLE 2
GROUP IV—TRANSAMINASE LEVELS

Race/Sex/Age	Transaminase/Units	Time of Test/Days
1. WM, 54	34 u.	2nd day
2. WM, 63	38 u.	2nd day
3. WF, 60	35 u.	1st day
4. WF, 72	14 u.	1st day
5. WM, 37	15 u.	2nd day

Discussion: In studying the records of the 5 patients from Group IV, it was found that, in one, a single test was performed less than twelve hours after the clinical onset of the coronary occlusion. LaDue et al.[2] and Agress[3] have shown

that the level might not be expected to be abnormal at this time. The earliest rise after clinical infarction is generally at about twelve hours, with an average peak at about twenty-four hours. "Some authors have found elevations occurring as early as two hours or as late as ninety-six hours after infarction. Return to normal has varied between two and eight days," as stated by Agress.[3] In 2 patients of Group IV, the transaminase level was actually obtained prior to the clinical onset of coronary occlusion, although the patients were in the hospital being treated for coronary insufficiency. In the other 2 patients of Group IV, the transaminase level was normal, but there was good clinical and/or electrocardiographic evidence that myocardial infarction had occurred. In both of these patients, the transaminase test was performed on the second hospital day, at which one would expect significant elevation; therefore, these 2 patients appear to represent false negatives, although serial studies were not done. In all 5 patients of Group IV, only one transaminase level was determined. The following illustrates a presumptive false negative:

WF, age 72, admitted December 29, 1958, after suffering severe substernal pain for six hours' duration. Serial electrocardiograms suggested posterior infarction. A transaminase level test performed thirty hours after the onset of chest pain revealed a level of 14 units. The patient was managed as coronary occlusion and recovered.

Group V. Patients Studied for Heart Disease—Transaminase level below 40 49 units.—3 patients

These patients were as follows:

1. WF, 83 years. Diagnosed as cerebral thrombosis, arteriosclerotic heart disease with congestive heart failure. Transaminase 44 units, test run on third day of clinical illness.

2. WM, 59 years, auricular fibrillation with subendocardial ischemia. Transaminase 45 units, test run on second day of clinical illness.

3. WM, 54 years. Dissecting aneurysm of aorta. Transaminase 40 units, test run on third day of clinical illness.

Discussion: In the 3 patients of Group V, these borderline elevations are not unexpected in patients with cerebral thrombosis and brain damage, or in patients in whom centrallobular hepatic necrosis may have occurred due to chronic passive congestion of the liver.

Group VI. Patients Studied for Liver Disease. Transaminase level below 40 units.—11 patients

These patients constituted a group in which the test was used as an aid in ruling out hepatitis. Final diagnoses at time of discharge are given in Table 3.

TABLE 3
DIAGNOSES
Patients Studied for Liver Disease

Gastroenteritis	2
Pylorospasm	1
Pancreatitis	2
Pseudomucinous Cystadenoma of Ovary	1
Undiagnosed abdominal pain	2
Acute cholecystitis	1
Schizophrenia, Nausea	1
Hydrops of gall bladder	1

Discussion: In review of the records of the 11 patients of Group VI there was no other laboratory evidence of hepatic disorder. The transaminase test gave a good negative correlation with clinical and other laboratory data.

Group VII. Patients Studied for Liver Disease — Transaminase level above 50 units—13 patients (Table 4)

Discussion: In the 13 patients of Group VII we found the most striking elevations of the transaminase levels. Where

TABLE 4

Diagnosis	Number	Transaminase/Units
Viral Hepatitis	5	95, 180, 195, 650, 1410
Biliary Atresia	2	415, 450
Hodgkin's Disease With Liver Involvement	1	72
Carcinoma of Urinary Bladder, Jaundiced	1	120
Congenital Spherocytosis, Anemia, Hepatomegaly	1	66
Obstruction of Sphincter of Oddi, Cause(?)	1	450
Carcinoma of Head of Pancreas	1	220
Undiagnosed Abdominal Pain	1	55

adequate information was available, there was good correlation between the transaminase test and other liver function tests. It was noted that the transaminase test was valuable to establish an early diagnosis of viral hepatitis. It has been shown by others that the serum transaminase test is valuable in detecting subclinical cases of hepatitis and may be elevated one to four weeks prior to other manifestations.[4]

Summary

In analysis of the clinical records of 111 patients from Schumpert Sanitarium, who had serum transaminase tests performed during 1958 or January 1959, it has been shown that the test is of value in the study of patients with coronary symptomatology; especially in those patients with a clinical picture compatible with myocardial infarction, but who have equivocal electrocardiographic tracings. In these patients, serum transaminase values above 50 units aided in making the diagnosis of myocardial infarction, and values below 40 units were helpful in ruling out infarction when confusing clinical electrocardiograms were present. Likewise, in patients suspected of having hepatic disease, high serum transaminase values were helpful in establishing the diagnosis, and normal levels aided in excluding hepatic pathology.

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Discussion

Dr. W. R. Akenhead (New Orleans): We should like to begin by commending Drs. Hand and Wilson on their excellent study. It is refreshing to see the pathologist and clinician collaborating in an effort to evaluate a procedure which seems to be another valuable adjunct to clinical medicine.

I believe that we may as well get used to evaluating these types of tests because as we become more intimate with cellular chemistry and reach for the molecular level in medicine there will be more and more procedures of this variety. Two weeks ago in Chicago at the meeting of the American College of Physicians, Dr. Wroblewski mentioned about 16 enzyme levels that were being studied in liver disease.

There is little to add to Dr. Hand's presentation except to say the same thing in different words and perhaps to emphasize a point or two.

Twenty-nine of Dr. Hand's patients were diagnosed as myocardial infarction; of these, 24 had significant elevation of the SGOT. In the five with negative tests only one determination on each patient was done and in two of these the specimen was taken too early—actually prior to the infarction. In one of the other three the clinical evidence for infarction was presumptive, leaving actually only two false negatives out of the total of 26. This compares favorably with the large collected series tabulated by Clarence Agress: out of over 1200 cases of clinical myocardial infarction the SGOT was elevated in 96.6 per cent. It may be that correlation in Dr. Hand's group would have been even better had serial determinations been done. It might be added that of the reported autopsied cases of myocardial infarction in which transaminase studies had been done, only one of the 63 cases showing infarction at postmortem had had a negative SGOT.

It would therefore seem fair to say that if a suspected myocardial infarction has negative serial transaminase studies, the odds are 62 to 1 that he doesn't have it.

If the test is positive one may feel 97 per cent sure that infarction is present if other causes of SGOT elevation can be eliminated. The list of other situations that may cause elevation of the transaminase level is long, and includes: myocarditis, severe pericarditis, hemolytic crisis, lupus, gangrene, muscle injury, muscular dystrophy, central nervous system disease, and after certain drugs, notably aspirin and codeine. Although this list is long, the difficulties in clinical differentiation from myocardial infarction in most instances are not too great; and again in most instances, in these situations, with the exception of muscle and liver disease, the elevation in transaminase is not very high.

There seems no doubt that SGOT determinations are of value in liver disease; however the experience of most would indicate that the Glutamine Pyuric Transaminase or SGPT is a more sensitive indicator of acute hepatocellular disease, and the combined determination of SGOT, SPGT and the alkaline phosphatase probably gives a better profile in delineating liver disease. Alkaline phosphatase is elevated in extrahepatic

obstruction, the SGPT in hepatocellular disease. When elevation of SGOT is greater than that of SGPT, it usually means that the liver disorder is of more chronic nature, such as cirrhosis.

All of this sounds wonderful, almost like putting the numbers in the machine on one end and reading the diagnosis on the other end. Unfortunately it is not this easy. These tests are not ends unto themselves, they are still adjuncts and it is still necessary to think.

Louisiana State Medical Society

Let it not be forgotten that one of the principal objects of the Society is the advancement of State Medicine. Although its interests concern the public at large, and our profession only as members of the general public, still medical men must take the lead and most of the labor in advocating its claims, and on them rests the responsibility. It is our business then, to look after the improvement of medical education and of public hygiene; but how can this be done to any good effect without organization?

Again, the protection of the public from the dangers of quackery is properly regarded as a matter of particular interest to physicians. We consider it a great mistake to suppose that this evil is to be met with by prohibitory laws. Quackery may be outlawed, like gambling and prostitution; and, while the two latter may be driven into secret places and rendered disreputable, the first will only flourish openly, for respectable people will continue to patronize it. For its exposure and discouragement the British plan is the most effectual, and the only proper one for English-speaking people. It consists in separating properly qualified medical men into a distinct class, so that the public may be able to distinguish between them and pretenders; then the public are left free to choose between them. The plan is carried out by the organization of local branches of one grand body, styled the British Medical Association, and the publication of a register, which contains the names of all qualified practitioners, with a description of their credentials, and open to public inspection.

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Surgical Diagnosis of the Acute Abdomen*

• The differential diagnosis of the acute abdomen is often difficult, but the decision as to whether or not to operate requires even more judgment. The author gives a panoramic review of pertinent points.

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THE surgical diagnosis of the acute abdomen challenges the clinical acumen of the most experienced physician, who becomes increasingly impressed with the superiority of hindsight versus foresight as experience increases.

The complaint of abdominal pain may be generalized as in peritonitis or may be sharply localized as in appendicitis. It may remain fixed at its point of origin as in ectopic pregnancy or it may radiate as in kidney or gallstone colic. Its intensity may be mild as in nonruptured peptic ulcer or excruciating as in ruptured peptic ulcer. Its character may be dull as in a splenic hematoma or it may be stabbing as in a moving kidney stone. It may be regularly recurrent as in the colicky pain of intestinal obstruction or unpredictably intermittent as in a slowly dissecting aneurysm. Its duration may be transitory as in ovulatory pain or it may be persistent as in strangulated intestinal obstruction. In addition to all of this, a host of significant digestive, urinary, gynecoid, respiratory, or circulatory manifestations may exist, or there may be a complete lack of associated subjective, objective, or laboratory clues.

The differential diagnosis of abdominal pain (Table 1) is often exceedingly difficult especially in the early stages when differentiating manifestations may be few in number. In a general way, we may say that pain is the early reaction to nonmalignant pathology, mostly infection; whereas mass or disturbance of normal physiological process is more indicative of malignancy.

Importance of Physical Examination and History

There are certain conditions such as acute pancreatitis, in which the clinical diagnosis is frequently missed because the possibility is not considered. Perhaps in no other field is it more important to take a careful and accurate history of the events preceding the onset of the disease than in the diagnosis of the acute surgical abdomen. The sequence of symptoms is much more important than the individual symptoms. The story of pre-existing attacks and the character of these attacks are often sufficient to distinguish between an acute cholecystitis and a slowly perforating ulcer of the duodenum; whereas the absence of previous attacks is more likely to suggest appendicitis.

It is also very important to weigh the present symptoms in relation to the elapsed time since the onset of the disease, because in any acute surgical problem involving the gallbladder, the duodenum, or pancreas the secondary signs and symptoms of the disease may strongly suggest intestinal obstruction owing to the secondary ileus which attends these conditions.

The posture assumed by the patient is very significant at times. The patient with a perforated ulcer remains very quiet and is reluctant to change positions. On the other hand the patient with intestinal obstruction or ureteral colic finds it difficult to remain in one position.

* Presented at the Seventy-ninth Annual Meeting of the Louisiana State Medical Society, in New Orleans, May 6, 1959.

The patient with acute pancreatitis is reluctant to lie on his back and will fold the arms over the epigastric region and exert some pressure over this area.

In palpating the abdomen, it is wise to start the examination as far from the site of suspected involvement as possible and as gently as possible. Finally, the examiner should pinpoint localized tenderness by single digital pressure in the various segments of the abdomen. One should not neglect examination of the flanks for evidence of tenderness, edema or ecchymosis. In the aged it is particularly important to examine all areas where external hernias may appear. No examination of the abdomen in a patient suspected of having an acute surgical condition is complete until a rectal examination has been done and until a pelvic appraisal has been made in the female.

If one may generalize with respect to age one may say that in the very young an acute surgical condition of the abdomen will usually be due to acute appendicitis; in the middle aged group acute cholecystitis, perforated peptic ulcer, and acute pancreatitis will be the most common offenders; while in the aged, diverticulitis, malignant obstruction of the colon and, more rarely, mesenteric thrombosis will be more common.

Operation

It is very important to realize that it is much more essential to make the correct decision as to whether or not to operate than it is to make the correct diagnosis. It is obvious that the surgeon might make the correct diagnosis but make the wrong decision as to indications for operation; such an error might be very harmful or even fatal. Even if a correct diagnosis is made and a surgical indication exists an operation may not be the wise choice when a total evaluation of the patient is made. Whatever the circumstances the surgeon assumes grave responsibility when he commits himself to a diagnosis of the cause of abdominal pain. On the basis of evidence that often is incomplete, inconclusive and incapable of proof under existing conditions, an operation may seem indicated as in a case of purported appendicitis; on the other hand the policy of "watchful waiting" may seem better advised, in acute cholecystitis in an obese hypertensive female of middle age. Finally, in some cases, it may be the better part of wisdom to actively oppose operation when clinical evidence indicates that abdominal pain may be referred pain or a manifestation of angina pectoris or coronary disease. Certainly, the conscientious physician should never gloss over the complaint of "bellyache" but should make every attempt to ascertain what the proper course should be before retiring for the night or starting on his daily round of golf.

Diagnostic Evaluation of Acute Abdominal Pain

In order to properly evaluate abdominal pain one must consider the following factors:

1. The time sequence—History of onset and later development.

   Examples: The 8-hour interval from epigastric or vague abdominal distress to localized pain in the right lower quadrant in appendicitis;

   Pain before and after meals in ulcer disease;

   Upper abdominal discomfort of gallbladder disease;

   Note: By history of onset one likes to know whether pain was the original symptom, exact point of origin, radiation, constant or intermittent, and very important is the presence of associated symptoms.

2. The location sequence

   Examples: Appendicitis — epigastric to right lower quadrant.

   Gallbladder — Right upper quadrant to tip of right shoulder blade or across upper abdomen.

   Kidney pain—starting at costovertebral angle and referred to the external genitalia.

Note: It is very important to know if pain is segmental in distribution and if tenderness is associated in the same area, for example, Herpes Zoster, where we have involvement of peripheral nerve contrary to the referred pain down the left arm without tenderness in coronary thrombosis. If pain and tenderness co-exist and are not segmental in distribution but rather follow the anatomic limits of the underlying cavity then inflammation of the underlying cavity is the more likely diagnosis. By paravertebral injection of three consecutive nerves, that portion of the abdominal wall can be desensitized and any remaining tenderness will be in the abdominal cavity.

3. The character of the pain—colicky, burning, stabbing, distending and effect of motion.

Examples: Sharp stabbing pain, high in the abdomen, suggests basal pleurisy; elsewhere it may mean a stone on the move.

Burning type pain in the upper abdomen frequently means ulcer disease. Severe excruciating pain, especially that associated with rigidity, suggests perforated ulcer.

Colicky pain suggests dysfunction of a hollow viscus and is produced by some degree of obstruction. If followed by vague but shocking pain with distention, it may mean a dissecting aneurysm or mesenteric thrombosis.

TABLE 1

DIFFERENTIAL DIAGNOSIS OF THE ACUTE ABDOMEN

Consideration should be given mainly to the following:

1. Acute appendicitis	6. Diverticulitis
2. Acute cholecystitis	7. Volvulus
3. Perforated peptic ulcer	8. Intussusception
4. Acute pancreatitis	9. Mesenteric Thrombosis
5. Intestinal obstruction	10. Miscellaneous

Diagnosis of Appendicitis

So-called classical triad:

1. Pain
2. Nausea and vomiting

3. Tenderness and rigidity usually associated with fever and leukocytosis

Typical case:

1. Abdominal Pain — epigastric at first and umbilical; may be diffuse—right sided, left sided, testicle, shoulder and clavicle: usually localized in four to six hours. Cessation of pain is last call to operate.

2. Nausea and Vomiting—more frequent in children and those prone to digestive upsets.

3. Temperature—rarely over 101°F.

4. Pulse rate — Steadily rising rate is important; if over 110, suggestive of perforation.

5. Leucocytosis—Variable

6. Constipation—in 50 per cent of cases

7. Diarrhea—Confusing signs in all the age groups; ominous in the aged.

8. Appearance — At beginning not acutely ill, lies quietly, right leg flexed, facies unchanged.

9. Inspection of Abdomen—Nothing

10. Palpation — (a) Point of maximum tenderness if appendix is in contact with parietes. If low in pelvis, may get none even though on point of rupture; (b) Cutaneous hypersensitiveness (c) Rigidity—always a late sign; (d) Rovsing's sign.

Obstructive type:

Picture is more suggestive of intestinal obstruction than of acute appendicitis. Constitutional reaction—slight tenderness and rigidity may never be demonstrable.

In Aged Adults:

Previous digestive distress

Sudden attack of abdominal pain, usually localizing after a time.

Always vaguer

Nausea and vomiting

Physical signs—vague

These are some of the unusual and not altogether uncommon situations that complicate the diagnosis of appendicitis:

1. The gastroenteritis with diarrhea that masks acute appendicitis.

2. Variations in the normal anatom-

ical location of the appendix such as pelvic, retrocecal, lateral cecal, high lying positions and left-sided appendicitis in malrotations.

3. Hydronephrosis due to ureteral stone blocking the ureter.

4. Appendicitis occurring during an acute upper respiratory infection.

Note: One usually thinks of mesenteric adenitis as the probable explanation of the abdominal pain and findings. It has come to our attention that abdominal symptoms presumably due to mesenteric adenitis may respond within six hours to antibiotics to the extent that pain and tenderness are completely relieved. In appendicitis there may be some improvement but not complete relief with antibiotics. It would be well to emphasize that there is no sound evidence to indicate that antibiotics might be used in lieu of surgical measures for appendicitis.

5. Beware of missing the diagnosis of appendicitis in a patient already in the hospital for some other problem. This happens often enough to deserve emphasis. Some have suggested that the worst place to develop appendicitis is in a hospital.

6. The patient on ulcer management with calcium carbonate powders is a good candidate for a calcium fecalith which may lead to appendicitis.

7. The patient who has had a sympathectomy may not have characteristic symptoms of appendicitis or any other abdominal disease and in him the slightest suggestion of abdominal trouble should be carefully evaluated.

8. The patient with severe psychiattric disease may have any of the serious surgical conditions without providing reliable symptoms as a guide.

Diagnosis of Acute Pancreatitis

Severe upper abdominal pain which resembles that of perforated ulcer or acute gallbladder disease may prove to be due to acute pancreatitis. Serum amylase determinations may be very helpful in the differential diagnosis and if sharply elevated is practically diagnostic if seen early in the disease. However, a false positive may occur in other acute abdominal diseases such as perforated ulcer, ulcer penetrating into the pancreas, and high intestinal obstruction. A point which may cause some confusion with intestinal obstruction or peritonitis is the marked paralytic ileus which may develop and be manifest on x-ray.

Calcifications as seen on x-ray in the pancreas are usually the result of repeated attacks of pancreatitis. Occasionally following acute pancreatitis a large pseudocyst may develop and cause pressure on the duodenum.

Acute pancreatitis is more properly in the category of an acute nonsurgical abdomen in the light of present day thought.

Perforated Ulcer

The sudden outpouring of gastroduodenal contents into the abdominal cavity produces one of the most dramatic clinical pictures encountered in surgery. The signs and symptoms are so unmistakable that the diagnosis is seldom missed.

Symptoms:

1. History of previous gastrointestinal disturbance in 85 to 90 per cent of cases.

2. Severe agonizing epigastric pain (most characteristic feature). If the opening is small and the leak gradual, there may be prodromal manifestations of vague epigastric distress and the pain may then start gradually, but this is unusual. In the majority of cases the pain is sudden in onset, reaches a maximum intensity immediately and remains constant and unremitting. The patient can recall exactly what he was doing at the time the pain struck. The intense pain, one of the most severe encountered in surgical practice, is thought to be the result of violent pyloroplasm induced by peritoneal irritation. It is generalized over the abdomen but more severe in the epigastrium and right upper quadrant. Approximately 20 per cent have shoulder pain;

it rarely radiates through to the back.

3. Nausea and vomiting are inconstant and have no diagnostic significance.

4. Severe prostration is a constant feature. Sweating, abdominal rigidity, tympany over the liver, and ultimately shock, complete the clinical picture.

Pneumoperitoneum: One of the most reliable diagnostic procedures in acute perforated ulcer is roentgenographic demonstration of spontaneous pneumoperitoneum.

The presence of free intraperitoneal air, demonstrable on x-ray in a patient with previous gastrointestinal disease and evidence of peritonitis establishes for practical purposes the diagnosis of ruptured ulcer. (Pneumoperitoneum can be detected radiologically in approximately 85 per cent of patients with perforated peptic ulcer; however, the visualization of free air merely indicates that there has been a perforation of a hollow viscus, not necessarily of the stomach or the duodenum.)

Technique of x-ray examination in perforated ulcer:

1. Fluoroscopy in upright and left lateral positions.

Absence of pneumoperitoneum may occur:

1. When a small and quickly sealed perforation occurs.

2. A short interval after the moment of perforation.

3. When there is no gas in the stomach and consequently no escape of air at the time of perforation.

Diagnosis of Acute Gallbladder Disease

Acute gallbladder attacks follow a sufficiently standard pattern as to require no special remarks.

Important points: Beware of the severe attack which starts out with a high blood count (20,000 to 30,000) because of the possibility of the development of gangrene. The development of paralytic ileus of appreciable magnitude or the observation of rebound tenderness elsewhere than in the right upper quadrant are warning signs for emergency surgery.

Pancreatitis and carcinoma of the gallbladder would be markedly reduced or eliminated if every patient with gallstones had cholecystectomy done when free from acute cholecystitis, acute hydrops, empyema, gangrene, perforations with peritonitis, either diffuse or localized, stones in the common duct, jaundice, cholangitis, hepatitis, gallstone ileus, and biliary fistulas. Thus, the recognition of stones in the gallbladder, in a patient who has no contraindication to major surgical operation, is reason enough for suggesting removal of the gallbladder. When acute cholecystitis develops in a patient with gallstones, cholecystectomy done within thirty-six hours of its onset is as satisfactory a procedure as is appendectomy for acute appendicitis.

Diagnosis of Acute Gynecological Diseases

A number of conditions of the female generative tract should be taken into consideration in the differential diagnosis of the acute abdomen.

Examples are: Tubal pregnancy ruptured, twisted ovarian cyst or tumor. Mittelschmerz syndrome and pelvic inflammatory disease can also frequently cloud the issue. The female generative organs are subject to neoplasms which may undergo acute changes. Not only are the complications of pregnancy numerous, but variations in normal physiology may give rise to pain. (Table 2).

True surgical emergencies are limited to conditions which are associated with progressive, severe hemorrhage. Hemorrhage from abortion and placental separation have self evident characteristics. On the other hand, intraperitoneal hemorrhage may be difficult to discern. It is more important to be able to recognize the signs of this catastrophe than to make an exact diagnosis of its cause. Prompt action is indicated for a patient who gives a history of lower abdominal pain of sudden onset and rapid progres-

TABLE 2

GYNECOLOGICAL CONDITIONS

A. **No evidence of pregnancy:**
   1. Variants in physiologic mechanism
      (a) Ruptured follicle
      (b) Ruptured corpus luteum
      (c) Primary dysmenorrhea
   2. Inflammatory disease
      (a) Acute salpingo-oophoritis
      (b) Acute pelvic cellulitis
      (c) Ruptured tubo-ovarian abscess
   3. Neoplasms
      (a) Uterine myoma
      (b) Adnexal tumors and cysts
   4. Endometriosis

B. **Evidence of pregnancy:**
   1. Abortion
      (a) Spontaneous
      (b) Induced
   2. Extra-uterine pregnancy
   3. Late placental accidents
   4. Rupture of the uterus
   5. Neoplasms

sion, and who exhibits diffuse peritoneal irritation, abdominal distention of non-gaseous character, and signs of restlessness, pallor, "pulse hurry" and hypotension. Occasionally, a similar clinical picture may be produced by a ruptured tubo-ovarian abscess. Fortunately the initial treatment for ruptured tubo-ovarian abscess is essentially the same as that of hemorrhage.

Other Conditions

Diagnosis of Meckel's Diverticulum with Perforation—Meckel's diverticulum with perforation presents the picture of ruptured viscus with peritonitis.

Diagnosis of Acute Intestinal Obstruction—The diagnosis of acute intestinal obstruction can be made at the bedside on the basis of clinical history and examination alone, as you all know, if one is thorough. The x-ray is of great assistance, but the diagnosis is primarily a clinical one.

There is no typical symptom triad. Nearly all patients at some time during the course of an obstruction have pain, vomiting, distention, obstipation and abnormal x-ray findings. Of these, perhaps distention and obstipation can be said to occur most consistently, yet neither is diagnostic. Pain and vomiting are more prominent in small bowel obstructions. A book could be written here on intestinal obstruction but time does not permit.

Diagnosis of Perforating Carcinoma of the Large Intestine—This disease is frequently confused with acute appendicitis and presents the typical picture of the ruptured viscus.

Other Obvious Causes of Abdominal Pain

1. Strangulated or incarcerated hernia
2. Enormous incisional hernia
3. Femoral hernia
4. Umbilical hernia
5. Acute diverticulitis

"Sleepers" (Conditions that may simulate acute abdominal disease)

Of Parietal Origin:

1. Myalgia
2. Slipping rib
3. Hernia — Epigastric, umbilical or incisional
4. Herpes Zoster

Of Extraabdominal Origin:

1. Acute rheumatic fever
2. Allergy
3. Collagen Disease—
   - Anaphylactoid purpura (Henoch's, Schonlein)
   - Erythema Multiforme
   - Erythema Nodosum
   - Lupus Erythematosus
   - Periarteritis Nodosa
4. Typhoid
5. Trichinosis
6. Plumbism
7. Spider and snake bite
8. Hemolytic anemia
9. Sickle cell anemia
10. Hypoglycemic crisis
11. Meningitis
12. Tabes dorsalis
13. Intrathoracic Disease —
    - Pleuritis
    - Pneumonitis
    - Pericarditis
    - Coronary Thrombosis

14. Urinary
    Ureteral Colic
    Renal Carbuncle
15. Psychogenic
    Malingerers
    Hysteria

Note: Hematuria is a "red herring" that requires careful evaluation. The hasty surgeon who cannot be bothered to wait for the urinalysis before he operates will sooner or later have cause to regret his haste.

Surgical Diagnosis of Acute Abdomen in Infants and Children

The acute abdomen in pediatric surgery is both fascinating and demanding of skill. The child cries and looks anxious but dosen't scream, while holding the muscles tense to protect the rigid abdomen. That the child is acutely ill is obvious. Whether it is or is not a surgical abdomen demands an immediate answer. One must determine whether the rigidity is due to an intraperitoneal infection or to an infection elsewhere with referred pain. While the history is of some value, the decision rests primarily upon the general and local examination.

The child with early pneumonia may have few chest findings but a rigid abdomen resembling that of peritonitis. The yielding rigidity of the abdomen in case of pneumonia is different from the unyielding rigidity of acute peritonitis.

Whenever one encounters a rigid abdomen of uncertain etiology it is wise to raise the child's head to eliminate the stiff neck of meningitis; to inquire about mumps which may be causing acute pancreatitis; to consider the possibility of early acute diarrhea which may be in the tenesmus rather than in the watery stage; to bear in mind always that respiratory infections of all kinds are notorious for producing abdominal findings. No child has appendicitis or peritonitis regardless of how textbook-like the symptoms are until one has looked in the ears and throat.

Parallel transverse ridges and furrows across the abdomen mean intestinal obstruction. They will be seen occasionally in cases of severe infantile diarrhea. Peristalsis from left to right in an infant is not diagnostic of pyloric stenosis, but nearly so.

A scaphoid abdomen with fullness only in the region of the stomach in a twenty-four to forty-eight hour infant who is vomiting bile is practically diagnostic of atresia of the duodenum.

A suprapubic swelling at once makes the examiner suspicious of an overfilled bladder. A generally enlarged abdomen suggests Hirschsprung's disease or portal obstruction with ascites. Enlargement in either upper quadrant at once suggests Wilms's tumor or a neuroblastoma.

Petechiae seen on the abdomen of a child who has abdominal pain and who has passed blood suggest Henoch's purpura and not a bleeding Meckel's diverticulum.

The three weeks' old child, probably a boy and often a first born, who has taken food well and suddenly begins to vomit all feedings but does not vomit bile has pyloric stenosis. Palpation of the tumor clinches the diagnosis.

The six months' old child who has never had a sick day in his life suddenly screams out with pain, vomits, becomes pale and limp. A few more similar episodes follow, including the passage of a bit of blood from the rectum. Light and gentle palpation will discover a sausage-shaped mass usually in the right upper quadrant or in the region of the transverse colon. A rectal examination is always in order not only to get some of the characteristic blood, but also to feel for the advancing intussusception.

If a child has passed a large amount of clotted, brick-red blood, not the usual "currant jelly," and has a mass in the abdomen, a diagnosis of bleeding Meckel's diverticulum and intussusception may be made with some assurance.

A newborn child has diminished reaction to pain and objective tenderness is below that of older children. Unless this is constantly borne in mind, one can

easily underestimate the importance of abdominal palpatory findings. The two or three day old child with atresia of the bowel has distention of the abdomen but only whimpers when its abdomen is touched. Even the infant with volvulus of the small intestine as part of the syndrome of malrotation of the bowel will not have the rigid abdomen one sees in an older child with strangulation obstruction.

Meconium ileus can be differentiated from atresia of the bowel by inspection and palpation. In case of meconium ileus the abdomen is distended at birth—not true in atresia of the bowel. Instead of the abdomen being tympanitic, it is rather firm and has a doughy feel. One usually can feel soggy masses in the abdomen; the masses are long, ropy pieces of inspissated mucoid meconium filling the lumen of the ileum.

Acute appendicitis in an infant below one year of age is rare and a correct diagnosis is an accident. Correct differentiation of acute appendicitis from an inflamed Meckel's diverticulum or mesenteric lymphadenitis is largely a matter of luck.

The one single symptom or sign most valuable, I believe, is localized tenderness. If it persists and if one can repeatedly return to this confined area of tenderness, operation is indicated.

The Roentgen Diagnosis of Acute Abdominal Conditions

X-ray is helpful in the following:

1. Acute intestinal obstruction
   (a) Mechanical
   (b) Paralytic Ileus
2. Perforated ulcer or other viscus
3. Volvulus
4. Foreign bodies
5. Urinary and gall stone calculi
6. Failure of visualization of gall bladder in acute cholecystitis.
7. Spleen—Rupture
8. Perinephritic abscess
9. Level of acute occlusion of aorta by abdominal aortography.

Summary

In summary, diseases requiring immediate operation are as follows:

I. Diseases of gradual onset and mild initial symptoms:

1. Acute appendicitis
2. Acute intestinal obstruction
3. External incarcerated and strangulated hernia
4. Unruptured ectopic pregnancy
5. Perforating lesions of the colon
6. Rupture of the gallbladder
7. Mesenteric venous occlusion
8. Perforated carcinoma of the stomach

II. Diseases of sudden onset and maximal manifestations:

1. Ruptured and leaking peptic ulcer (Formes Frustes perforation)
2. Ruptured ectopic pregnancy
3. Acute appendicitis
4. Spontaneous perforation of: An intra-abdominal viscus such as sigmoid (ca), stomach, spleen, Meckel's, gall bladder.
5. Mesenteric vascular occlusion
6. Twisted pedicle or intra-abdominal tumor
7. Rupture of an intra-abdominal abscess
8. Spontaneous intra-abdominal hemorrhage (abdominal apoplexy)

Diseases for which operation can be delayed.

I. Diseases of gradual onset and mild manifestations:

1. Acute cholecystitis
2. Acute diverticulitis
3. Acute salpingitis
4. Inflammatory masses
5. Intractable obstructing duodenal ulcer
6. Epigastric hernia
7. Regional enteritis
8. Ileocecal tuberculosis

II. Diseases of sudden onset and maximal initial manifestations:

1. Biliary colic
2. Chronic recurring pancreatitis; pancreatic calculi

Diseases with abdominal manifestations, but in which operation is contraindicated or harmful:

I. Diseases of gradual onset and minimal initial manifestations:

1. Acute respiratory infections
2. Acute enteritis
3. Mesenteric lymphadenitis
4. Ovulation
5. Rheumatic fever
6. Hepatomegaly
7. Spontaneous hemorrhage into rectus abdominis muscle
8. Diabetes mellitus
9. Malaria
10. Sickle cell anemia
11. Lead poisoning
12. Spider bite
13. Acute porphyria
14. Periarteritis Nodosa

II. Diseases of sudden onset and maximal initial manifestations:

1. Acute pancreatitis
2. Urologic causes of abdominal pain
3. Coronary Occlusion
4. Dissecting aneurysm of the aorta
5. Abdominal pain with spontaneous pneumothorax
6. Abdominal pain with Herpes Zoster
7. Gastric crisis of tabes dorsalis

NOTE: No claims are made for originality in the above paper. Material was freely drawn from standard textbooks, such as Handbook of Differential Diagnosis by Hyman; Claude Welch's Handbook of Operative Surgery; the Differential diagnosis of Abdominal Pain by Mellinkoff; Acute Abdominal Pain by Requarth; Surgical Clinics and other standard references.

Historical Notes

We do not believe that yellow fever is **contagious**, communicated from body to body—but that the cause, whatever it may be, spreads through the atmosphere, and that a certain amount of the poison in this medium is necessary for its manifestation. That its spread is not by diffusion, otherwise it would grow less and less in intensity; but that it is capable of multiplying in some way, as yet unknown to us, thereby increasing the intensity of its infection. That this atmospheric infection-tendency while greatly due to, is not wholly dependent upon heat and moisture, but that the presence of decomposing organic material and the gases arising therefrom enter largely as a factor, if not in its production, at least in its spread; and that cleanliness of person and surroundings will go far towards preventing its spread, if not securing its entire eradication.

Report of Committee, Public Health Association: New Orleans M. & S. J. 7:605 (December) 1879.

Vaginal Fungi During Pregnancy*

• Vaginal fungi have increased in incidence. In 232 pregnant women, cultures were positive in 116, of which 99 were Candida albicans.

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THERE is little doubt that the incidence of fungal infections of the vagina are increasing. Initially this was attributed entirely to the widespread use of potent antibacterial agents which removed competing bacteria; however, in addition subsequent studies have shown that broad spectrum antibiotics directly enhance the virulence of monilia for animals.[1] The usual yeast causing vaginitis is *Candida albicans*—a ubiquitous agent that frequently causes only minor disease such as thrush and intertrigo but under some conditions may cause major illnesses (pneumonitis, endocarditis and meningitis). This agent may also be part of the normal flora of the skin and mucous membranes. Diabetes mellitus, alcoholism, obesity, vascular stasis and profuse sweating are listed as predisposing factors.[2]

To the obstetrician and gynecologist this much neglected organism has suddenly become more important due to the increasing incidence of severe pruritis and discharge from vaginal candidiasis. This agent is more frequent in pregnancy and more difficult to eradicate because of the increased glycogen content of the vaginal epithelium as well as its increased vascularity and the occurrence of glycosuria. In the pregnant as well as the nonpregnant patient monilial vaginitis is now more frequent than that due to *Trichomonas vaginalis*.[3, 4]

* Aided by Grants from the Tulane Ex-Residents and Fellows Research Fund.

Medium and technical assistance supplied by the Research Laboratories of E. R. Squibb & Sons, Division of Olin Mathieson Chemical Corporation.

Materials and Methods

This study was begun to determine the incidence of pathogenic fungi in the vaginal tract during pregnancy. Cultures were taken from the posterior fornix of the vagina of 232 pregnant patients. Nineteen were nonclinic white patients and the remainder were those colored patients reporting to the Tulane Prenatal Clinic. For this purpose Pagano-Levin culture medium[5] was used as a screening agent. This is essentially Sabouraud's media with neomycin added to inhibit bacterial growth plus a tetrazolium compound as an indicator. Tetrazolium compounds are reduced to colored formazans by the different fungi of the genus Candida. Also the intensity of this color change varies with the different species of this genus if the time factor remains constant. In *Candida albicans* this reaction is quite limited, rendering the colony a moist, glistening white or pale pink. Other members of this genus reduce the tetrazolium to a greater degree, coloring their colonies from dark pink to red with the exception of *C. krusei*. This organism, however, differs grossly from the glistening, moist, raised colonies of *C. albicans*, since its colonies are flat, dry and wrinkled. The medium is supplied on a slant with two sterile applicators and color chart. It should be read in forty-eight hours since the color may become more intense with the increasing reduction of tetrazolium over a longer period of time.

Accordingly all our cultures were read on the second day. Those not definitely *C. albicans* were sent to the mycologic laboratory for exact diagnosis. In addi-

tion, every tenth colony read as *Candida albicans* was confirmed by mycologic tests.

Patients were also classified as to the complaint or lack thereof of pruritis and discharge. These symptoms, however, were most unreliable. It was soon obvious that many patients with a profuse leucorrhea were blithely unaware of its presence or at least its pathologic significance. Many more patients, than those admitting, actually had severe leucorrhea.

Results

The results are summarized in Table 1. It is apparent from this table that fungi were cultured from the posterior fornix of 115 patients (53.4 per cent), and in one instance both *Candida albicans* and *Candida tropicalis* were isolated from the same specimen. Of the fungi listed *Candida albicans* definitely has proven to be pathogenic and was cultured in 42.6 per cent of patients. It is also interesting that all patients from whom *Candida stellatoidea* was isolated complained of both pruritis and discharge, while none of the four patients from whom *Candida tropicalis* was obtained complained of either.

TABLE 1

RESULTS

Cultures from the Vagina of 232 Consecutive Pregnant Patients

		NO.
A.	Positive Cultures	
	1. Candida albicans	99
	2. Candida tropicalis	4
	3. Candida stellatoidea	3
	4. Candida parakrusei	1
	5. Candida (type not determined)	2
	6. Yeast not genus Candida	7
B.	Negative Cultures	
	No growth	97
C.	Contaminated Cultures	20
	Total	233*

* There was one double infection with **C. albicans** and **C. tropicalis.**

In two instances the type of Candida could not be determined and seven patients had yeasts not of the genus Candida. Considerable difficulty with filamentous fungal contaminants overgrowing the medium was apparent. This occurred in 8.6 per cent of patients and may have obscured pathogenic yeasts.

Summary

Two hundred thirty-two consecutive pregnant patients, both clinic and nonclinic, were screened with Pagano-Levin medium for vaginal fungi. One hundred and fifteen of these patients harbored fungi in the posterior vaginal fornix and in 42.6 per cent the yeast was *Candida albicans.* The medium proved to be a simple, accurate and effective means of isolating *Candida albicans* from the vaginal tract.

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Changing Concepts in Managing Peripheral Vascular Amputees

• Choice of the level amputation deserves careful evaluation, and the authors make a plea for below the knee, which they believe is effective in most patients with peripheral vascular disease. They urge the necessity for training in the care of the stump and use of the prosthesis and give a resume of their results.

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FOR many years some surgeons interested in extremity and vascular surgery have recognized that peripheral gangrene of the lower extremity could be adequately controlled in certain patients by local resection of toes or involved portions of the foot, or by amputation below the knee.[3, 4] However, twenty years ago it was a matter of policy, on the service where one of us was a house officer, to do a midthigh amputation on any patient with diabetic or arteriosclerotic gangrene in whom it appeared that removal of toes would not suffice, and amputations at the midthigh level are still being advocated in patients with gangrene secondary to diabetes,[5] or to arteriosclerosis.[2] This concept is apparently based on the premise that healing is more certain in such patients amputated above the knee, and that few of these patients could successfully manage prosthetic restitution.

Our philosophy is somewhat different. From our experience it appears that by careful selection one can restore ability of ambulation with a prosthesis in an appreciable number of these patients, and avoid major amputations in others. Although it is difficult for an elderly individual to learn to use a prosthesis many such elderly patients in a reasonable state of general health master prosthetic gait after a unilateral below knee amputation or after a unilateral thigh amputation. The same is true after bilateral amputations if one amputation is at the below knee level. It is unusual for an oldster to ambulate on bilateral above knee prostheses.

In the seriously ill patients with dry gangrene and with cardiac decompensation or other serious medical conditions which appear likely to terminate fatally within a matter of hours or a few days, amputation is seldom desirable except to relieve pain. However, in a patient without general medical conditions which would prevent ambulation, who has been ambulatory prior to the onset of their illness, and who requires a major amputation of one lower extremity, we believe that if surgically practicable it is generally wise to attempt a below knee amputation on the first lower extremity to require amputation. Healing can often be obtained at this level in the absence of a popliteal pulsation and has been obtained even in the absence of a palpable femoral pulse. Some assistance in determining whether healing may be possible at a given level may be had from the temperature and color of the skin, the location of the pain,[6] and the amount of bleeding and color of the muscles at surgery.[7] In our opinion, however, there is no completely reliable method of being certain that healing will occur at any level, even at surgery.

* Presented at the Seventy-ninth Annual Meeting of the Louisiana State Medical Society, in New Orleans, May 6, 1959.

Our choice of level for amputation below the knee in this type of patient is from four to five and one-half inches below the tibial plateau. Equal length flaps are used, careful technique is essential and, as at other levels, excessive soft tissue at the end of the stump is avoided.[1] It is never desirable to cover the bone end with a "pad" of muscle.

Careful attention is given postoperatively to prevent hip and knee contractures, both on the amputated and unamputated side. General conditioning exercises are taught, stump wrapping is begun as soon as feasible and early ambulation on crutches is encouraged. If the unilateral amputee cannot walk with crutches he will seldom, if ever, be able to walk with a prosthesis. It may be possible to fit a prosthesis as early as eight weeks in favorable cases. Correct limb prescription and expert prosthetic fitting are essential. Most of these old patients need considerable training in order to walk with the prosthesis because they lack the confidence which is of assistance in acquiring agility in children and young adults. It is well in this connection to refrain from impossible goals of prosthetic achievement since these patients will definitely not run up and down stairs, or jump over obstacles. However, walking on rough ground, use of public transportation, stairs, and driving a car are taught when of value to that patient.

To attempt to evaluate the results obtained with prosthetic restoration in this type of patient we have reviewed our records of patients who were accepted for preprosthetic and prosthetic training at the Tulane University Rehabilitation Unit since June 1953. Of the 95 amputees treated there, 28 had major amputations because of peripheral vascular disease, in some cases associated with diabetes. These patients were referred to us for training, and in only a few of these had the amputation been done by us or on hospital services with which we are associated. Some had already tried to use an artificial limb without success. Many had no preprosthetic conditioning or stump wrapping and had hip or knee flexion contractures of varying degrees.

All of these were treated on an outpatient basis. Stump wrapping and exercises were begun and use of the prosthesis deferred until maximum benefit had been obtained from these measures. The details of this training do not concern us here. Of these 28 patients, 23 or 82 per cent were considered to be successful prosthetic users for their age, general condition, and level of amputation (Table 1). All of the unilateral above-knee patients could walk without a cane but several of these persisted in using a cane in spite of our advice to the contrary. Fear of falling was the reason usually given, but in some cases fear of losing financial aid from the Department of Welfare seemed a more likely explanation.

Five patients failed to complete the program (Table 2). Although the average age is higher than in the successful cases the difference is not great.

Since this group of patients had been highly selected after surgery, to attempt to determine the results of our philosophy of amputation from peripheral vascular

TABLE 1

TULANE REHABILITATION UNIT

Twenty-three major peripheral vascular amputees who successfully used prostheses.

Level	Number	Average Age	Remarks
Bilateral AK	1	71	Used walker
Bilateral BK	1	43	No canes
Bilateral AK-BK	1	60	Two canes
Below knee	4	51	No canes
Above knee	16	53	Many used a cane
Total No.	23	Average year 53	

TABLE 2
TULANE REHABILITATION UNIT
Five peripheral vascular amputees who were prosthetic restoration failures.

Level	Age	Cause
Bilateral AK	62	Not enough stamina
Bilateral BK	62	Died before receiving limbs
AK	64	Personality problems: would not cooperate
AK	49	Died before receiving limb
AK	48	Pain in other leg
Average age	57 years	

disease, the charts of all patients on the orthopedic service requiring lower extremity amputations at the Veterans' Administration Hospital in New Orleans from June 1953 to December 1958 were reviewed. There were 107 such patients of whom 73, or 68.2 per cent had a total of 104 amputations because of peripheral vascular disease or diabetes (Table 3).

TABLE 3
TOTAL AMPUTATIONS

	Toe	Ray	Trans-metatarsal	BK	AK
Arteriosclerosis	6	1	6	17	31
Diabetes	3	3	5	11	12
Buerger's	1			5	
Embolus				2	1
	10	4	11	35	44

Of these, 17 had successful minor amputations in the foot, and 56 had major amputations. The mortality for the group was 10.9 per cent (Tables 4 and 5). These deaths include all patients who

TABLE 4
AMPUTATIONS

Etiology	Patients	Deaths	
Arteriosclerosis	40	6	
Diabetes	25	1	
Buerger's	6	0	
Embolus	2	1	
Total	73	8	10.9%

died prior to being discharged from the hospital. The surviving successful minor amputees were all ambulatory to at least some extent when discharged from the hospital. Of the 50 surviving major amputees, 24 were successfully fitted with prosthesis and became ambulatory (Table 6).

TABLE 6
AMBULATORY GROUP

	BK	AK	AK & BK
Arteriosclerosis	10	1	1
Diabetes	5	2	0
Buerger's	4	0	0
Embolus	0	0	1
Total	19	3	2

Two additional patients were fitted with prosthesis but did not become prosthetic wearers. One was a below knee amputee who had great difficulty walking and in spite of a well-fitting prosthesis had repeated episodes of ulceration on his stump. The other was a bilateral with one below knee stump who went home during his training because of a business emergency and apparently preferred to remain there in a wheel-

TABLE 5
DEATHS

	Age	Cause	P. O. Time	Level of Amputation
Arteriosclerosis				
	78	Uremia	11 days	AK
	65	ASHD	30 days	AK
	56	Gangrene—right leg, shock, anuria	7 days	AK
	69	CVA, aspiration, CHF	90 days	AK
	60	Uremia, hypertension	33 days	Toe
	59	Coronary	69 days	Transmet.
Diabetes				
	64	Coronary	90 days	AK
Embolus				
	42	Pulmonary embolus	28 days	BK

chair rather than return and complete his training. The cause of this apparent loss of motivation is not known.

The oldest patient to be fitted with a prosthesis in this series was 71 years of age. Although the average of the ages of the fitted group is younger than the nonfitted (Table 7), we wish to emphasize that age is less important than general physical and mental fitness and no arbitrary upper age limit can be set.

TABLE 7
AGE AVERAGE

	All Patients	Fitted Groups	Nonfitted Groups
Arteriosclerosis	61.4	57.5	65.1
Diabetes	58.7	51.3	63.6
Buerger's	40.2	40.8	38 (1 pt.)
Average	58.9		

In this series there were 10 patients requiring bilateral major amputations. In the 56 patients requiring major amputations, a total of 85 operative procedures were done, including 8 minor and 11 major amputations which did not heal and required reamputations at a higher level. This indicates a failure of healing in 22.4 per cent. Since 42.9 per cent of the major amputees were successfully fitted with and walked with prostheses, it is our opinion that this percentage needing reamputation is acceptable, particularly since only one death occurred following reamputation.

Summary

1. A conservative approach as to the site of lower extremity amputation in peripheral vascular disease is described.

2. Our operative experience with 73 such patients requiring 104 amputations is reported. In 39 of these patients ambulation was preserved, including 24 major amputees.

3. Our experience with an additional group of 28 similar patients whose surgery was done elsewhere is reported. Of these 23 became ambulatory with prosthesis.

Conclusions

1. A surgeon should have no "routine" level of amputation in the lower extremity for peripheral vascular disease.

2. Each patient should be carefully evaluated in all respects before deciding upon a level. Some individuals would not wish to assume the risk of multiple operative procedures with consequent prolonged hospitalization and expense to attempt to obtain a stump which could be successfully fitted with a prosthesis.

3. Since many of these patients will eventually lose the other leg, a below knee amputation should be considered.

4. Careful atraumatic surgical technique is a necessity in these patients.

5. Preprosthetic conditioning, including general body exercises, special exercises to prevent contractures in the lower extremity and stump wrapping are essential.

6. Good prosthetic fitting is a necessity.

7. Training in prosthetic use should be given and supervised.

8. A surgeon and trainer should be realistic in the prosthetic function they expect these patients to achieve. Some of them may need to use a cane for extra support and some of the bilateral cases may need to use two canes, crutches, or a walker, for some activities.

9. Prosthetic training is easier and prosthetic gait is much better following successful below knee amputation than at higher levels.

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Discussion

Dr. Alfons R. Altenberg (Monroe): It has been a pleasure for me to review this paper presented by Dr. Edward T. Haslam. Surely, he has

been able to substantiate statistically the success with which conservative amputations may be carried out in certain selected cases.

The success of conservative amputations in peripheral vascular disease is based primarily on the careful selection and individualization of each case. Certainly, peripheral amputations have a greater risk and a greater morbidity. I do not feel that peripheral amputations are indicated in any patient in whom there is no hope of future prosthetic ambulation. Among the factors which determine this are irreversible disability, permanent flexion contractures of the knee, ischemic pain above the popliteal level.

If the age and condition of the surviving part is such that prosthetic rehabilitation is possible, the distal type of amputation should be attempted. Where possible, of course, amputations should be restricted to toes and through the transmetatarsal area. Some cases of Symes amputations give wonderfully long lasting results.

In closing, I feel that this presentation is timely. It should remind us not to close the door on the simpler and peripheral types of amputations in selected cases of peripheral vascular disease. The surgical technique, as pointed out by Dr. Haslam, should be simple, meticulous, and atraumatic. The selection of cases should be on the basis of complete individualization and not on a statistical basis, or on the basis of the simple diagnosis of gangrene.

New Orleans in 1879

The summer of 1879 will long be remembered in New Orleans as one of unparalleled healthfulness, and the weeping Jeremiahs of the country now find that they have been mistaken in asserting that to be unhealthy is the normal condition of this city.

The death rate for several consecutive weeks was remarkably low, and on one occasion the total deaths for a week amounted to but 68. This low rate of mortality was attained but once before in eleven years.

The summer months have been remarkably pleasant and delightful in contrast with some of the health resorts to which the residents of this city flocked. The mean temperature has been comparatively low during the months of June, July, August, and September, being respectively 88, 87, 81, 78°. Nights rendered oppressive by heat were rare. * * * These favorable conditions of our climate seem to us to play an important part in accounting for the healthfulness of our city.

* * * * The old plan of dumping garbage from the streets and gutters into vacant squares in the rear of the city has been abandoned, and a system of removal of this foul and offensive matter into barges and deposited into the Mississippi River Below the city inaugurated. The streets and gutters have as far as practicable been flushed with river water, and thorough and repeated cleansing of yards, drains, and privy vaults has been insisted on.

Editorial: New Orleans M. & S. J. 7:657 (December) 1879.

Pigmented Moles*

• A brief outline is given of the differentiation of benign pigmented nevi from those which may become malignant melanoma, and of other pigmented lesions.

WILLIAM J. PERRET, M. D.†
New Orleans

IN an attempt to choose a topic of general interest, I have selected the most common tumor of the skin.[5] Pigmented moles are found in almost every person and it has been estimated that the average number of moles per person is about twenty.[4]

Patients as well as physicians are aware of the relationship of pigmented nevi and malignant melanoma. The physician must be able to determine which of the pigmented growths on the skin are benign and can be ignored, and which are potentially or actually malignant and must be removed.

The purpose of this paper is to outline the types of pigmented nevi and their treatment and, to describe briefly some of the other pigmented lesions of the skin which must be differentiated from nevi.

The term "nevus", in general, refers to any congenital new growth of the skin. Broadly speaking it includes hemangiomas and epidermal nevi as well as pigmented moles. True nevus cells, which are oval or cuboidal cells with large pale, vesicular nuclei and homogeneous cytoplasm[2] are found only in pigmented moles.[4] In this discussion "nevus" will refer only to tumors containing nevus cells.

Junction Nevi

The junction nevus, is a circumscribed, smooth or slightly raised light brown or brownish-black macule or papule. Junction nevus is the term used by pathologists to indicate activity of nevus cells in the basal layer of the epidermis at the junction of the epidermis and the dermis. The term junction does not refer to anatomical location at the junction of skin and mucous membrane.

Most of the pigmented nevi of children are of the immature junction type. As the child grows these develop into more mature compound and intradermal nevi about which we will speak later. On the palms, soles, and genitalia, junction nevi tend to remain as such throughout life.

Junction nevi are by far the most important of the benign pigmented nevi because they sometimes develop into malignant melanoma. About one fourth of melanomas arise *de novo* and the remainder from pre-existing moles, chiefly junction nevi.[5] It is then apparent that proper handling of these lesions might prevent three fourths of all melanomas.

Compound Nevi

Compound nevi have features of both junction nevi and intradermal nevi, representing a stage of maturation of the former into the latter. In addition to the gross characteristics of the intradermal nevus, which I will subsequently describe, the compound nevus has a pigmented halo at its periphery.[1]

Intradermal Nevi

The common, mature intradermal nevus may be flesh-colored or dark brown to black in color. It may be sessile, dome-shaped or warty in appearance. It may contain hair. These nevi are more common on the face and upper trunk. These lesions are truly benign and do not ordinarily become malignant even after repeated trauma.[5]

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* Presented at the Seventy-ninth Annual Meeting of the Louisiana State Medical Society, New Orleans, May 6, 1959.

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Removal

Since it is usually impractical to remove all pigmented nevi from a given individual certain criteria are cited as indications for removing some of these lesions:

1. Location on the palms, soles, or genitalia.
2. Change in the quantity or distribution of pigment.
3. Loss of hair in a hairy nevus.
4. Repeated trauma such as results from shaving, and combing the hair.
5. Ulceration or bleeding. Moles in which these occur may already be malignant.
6. Increase in size.

I would like now to discuss methods of removal of pigmented nevi. This is a subject on which there is much controversy. Some believe that incomplete removal of pigmented nevi may leave scar tissue that may excite the remaining nevus cells to become malignant melanoma.[3] Others have shown by later biopsies of incompletely removed nevi that the remaining cells do not become more active because of the trauma involved in partial removal.[6]

If the lesion is obviously benign and is being removed solely for cosmetic purposes, one should choose the least destructive procedure possible. A popular practice is to shave the mole flush with the surface of the surrounding skin with a scalpel or razor blade, and then to electrodesiccate lightly the base to secure hemostasis. A satisfactory specimen can be obtained for biopsy because the critical area, the dermo-epidermal junction can be evaluated in a shave biopsy.

The punch biopsy instrument is an effective tool for doing a complete excision of small moles. Closure of the wound with sutures is not necessary and scarring is minimal.

Many pigmented nevi are removed because one believes they may be dangerous. When this is the case it is obvious that any method used should be complete. The most certain method of complete removal is surgical excision. We believe that any pigmented lesion that causes anxiety to the patient or the physician should be submitted in its entirety to the pathologist. The pathologist can then assure both that the lesion is benign or can indicate whether or not excision is adequate if the lesion is malignant.

Other Pigmented Lesions

A discussion of pigmented moles would not be complete without mention of some of the other pigmented lesions of the skin which may simulate them in appearance.

The **Ephelis** or **Freckle** is a brown macule. It is a benign condition due to an increase in activity of pigment producing cells in areas of skin stimulated by sunlight. It tends to disappear if the skin is protected from sunlight. Histologically it shows only an increase in melanin pigment in the basal layer of the epidermis.

The **Lentigo** is a smooth dark brown macule. It may occur in children and young persons, but is seen more commonly on the face, hands and forearms of elderly people. It does not disappear when the skin is protected from sunlight. It shows an increase in the number of pigment producing cells in the basal layer of the epidermis and elongation of the rete ridges.

The **Mongolian Blue Spot** is seen most frequently in Oriental and Negro infants, but occurs also in Caucasians. It is a well circumscribed flat slate blue or brownish pigmentation found usually in the sacral area, but also in other locations. It ordinarily disappears without a trace in infancy or early childhood. The pigment is in the dermis.

The **Nevus of Ota** is similar histologically to the Mongolian Blue Spot. It is located on the side of the face and often involves the sclera. It tends to progress slowly rather than disappear.

The **Blue Nevus of Jadassohn** is a flat or raised blue-black macule or pap-

ule often limited to the face or extremities. It is a benign lesion which may be mistaken for melanoma because of its color. The dermis contains long, irregular spindle cells filled with melanin.[2]

Lentigo Maligna or **Melanotic Freckle of Hutchinson**[5] are dark brown spots on the faces of elderly people. They slowly enlarge and may become malignant. If they do they form nodules which show the features of malignant melanoma on biopsy. These melanomas metastasize slowly and even then do not kill the patient as rapidly as ordinary melanomas.

Malignant Melanoma is not the subject of this discussion and it is mentioned here only to differentiate it from benign pigmented nevi. It shows the features that one does not expect to see in a benign mole, such as nodules in a previously flat lesion, irregularity of pigment, satellite tumor formation and ulceration.

There are other lesions, only incidentally pigmented, which may look like moles.

Seborrheic Keratoses are yellowish or brownish, sharply demarcated, greasy, warty growths, usually seen on the face and trunk of older persons. They are benign basal cell papillomas. In Negroes small dark papules with an identical histologic picture are called **Dermatosis Papulosa Nigra.**

Histiocytomas are hard, skin-colored, dark brown or black nodules within the skin itself. They are also called dermatofibromas, hard fibromas or sclerosing hemangiomas. They are benign and may be left alone if recognized as such or they may be conservatively excised.

Pigmented Basal Cell Carcinoma shows the usual features of basal cell carcinoma plus pigment which may give it the appearance of a pigmented nevus on superficial examination.

Senile Keratoses are red scaly patches or papules on exposed areas of the skin of older persons. They are sometimes pigmented or colored from hemorrhage.

Common Warts may look like pigmented moles if they have been irritated and contain blood.

Pyogenic Granulomas are red, friable, pedunculated tumors that result from trauma. They are composed of capillaries and inflammatory cells. At times they resemble melanomas so closely that biopsy is necessary to establish the diagnosis.

Summary

The clinical features of pigmented nevi have been reviewed. Changes in these lesions which have been cited as criteria for their removal have been discussed. Several other pigmented growths of the skin which must be differentiated from nevi have been described.

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Discussion

Dr. V. Medd Henington (New Orleans): I would like to congratulate Dr. Perret on his very excellent presentation. He has covered the subject of pigmented moles very thoroughly in the time allotted, and I shall emphasize some of the points which he has brought out.

Dr. George Pack and his group at the Memorial Hospital, after counting the nevi on many thousands of patients, arrived at the conclusion that there are 14.6 nevi per person in the United States.

If one takes the population of the United States as 180,000,000, then we can quickly arrive at the fact that there are two billion 682 million moles at this moment on people in this country.

Now obviously, it is not necessary or practical to remove any or all nevi on all patients. Therefore I shoul like to limit my discussion to which nevi should be removed; when should they be removed, and how should they be removed.

I believe that a physician should have many

modalities at his command, and should not use any one method in removing all pigmented moles which present themselves. For instance: one might remove a junction nevus a bit differently than one would remove an intradermal nevus. On the other hand, one might remove a compound nevus on the sole of the foot a bit differently than one would remove the same type of nevus from the glans penis. One would probably remove a compound nevus from the face of a young blond-headed girl a bit differently than one would remove the same type of nevus from the face of a sixty-year-old farmer.

. Among the many questions asked, by patients, of me and I am sure that you are confronted with exactly the same questions are: Doctor, what is this little spot? Is this malignant? or can it become malignant? Does anything have to be done about this lesion . . . if not, can anything be done about it for cosmetic reasons? . . . and many other questions of this type.

All moles, whether they be pigmented or nonpigmented, should be removed if first, they are undergoing changes or show definite signs of activity. By signs of activity, I mean certain enlargement, bleeding, inflammation, alteration in color (either becoming darker of lighter) ulceration crusting, development of satellite pigmented areas or these moles which become pruritic or painful. Second, those moles which show any activity during pregnancy should be removed. Third, all junctional nevi should be removed and fourth, all nevi on the soles of the feet, the genitalia or the palms of the hands.

We know, from a vast amount of clinical and laboratory information, that the moles which become malignant are either the junctional or the compound nevus. The intradermal nevus, for all practical purposes, never becomes malignant. However, one cannot always tell by examination of the lesion just what type of nevus it is. As a general rule the junctional nevus is a light brown to black color and it is flat or very slightly raised above the skin. One should remember that junctional nevi tend to become intradermal nevi with increasing age. Nevi which have junctional elements, that is, the junctional nevi and the compound nevi are generally accepted as being potential precursors of malignant melanoma.

Junctional nevi are best removed by surgical excision. Compound nevi can either be surgically excised or can be excised flush with the skin so that one might have a section for pathological examination and then electrodessicate it. The intradermal nevi can simply be dessicated flush with the skin and allowed to heal with very little scar formation. I would condemn the use of electrolysis for the treatment of all pigmented nevi. I would be equally objectionable to the use of refrigeration with carbon dioxide snow or liquid nitrogen, or the removal of nevi by dermabrasion.

Perhaps the most confusion exists by the term juvenile melanomas. I have seen very destructive surgery result from such a pathologic report. Juvenile melanomas are simply junction nevi occurring before the age of puberty. Junctional nevi in the juvenile period do become malignant melanomas rarely. If I remember correctly, McWhorter was only able to find four cases of malignant melanomas in children before the age of puberty in the files of the Mayo clinic, which attests to the rarity of this condition. When one receives a pathological report of juvenile melanoma, one should further study the section and if he is convinced that it is a benign lesion, it should be treated exactly as all junctional nevi are treated; whether they occur in children or adults. However, if this lesion is a malignant melanoma then it should not bear the title juvenile melanoma, but should be reported as malignant melanoma, regardless of the age of the individual, and then should be treated as such.

Louisiana State Medical Society

The annual meeting of this body, which will take place in the last Wednesday in March, is so near at hand that a few remarks a propos of the occasion may not be inappropriate. Nearly all the States of the Union, including the most recently settled, have similar organizations, and their utility is no longer a matter of question, outside our own borders. In Louisiana, however, as regards the great majority of the medical profession, the matter seems either to be decided in the negative or to be still unsettled, from the evidence afforded. The number of local medical societies is so small that it was found impracticable to organize the State Society as a representative body; while its individual membership throughout the State is only 106 altogether, out of 876 practitioners whose names have been reported.

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Editorial

Poisons Should be Properly Labelled

The danger from poisons that may cause injury or death is increasing. There are now a quarter of a million trade name chemical products on today's market for use in the home and in industry. These products may or may not contain substances which are injurious to those who come in contact with them. Without proper labelling there is no way for the users of these products to know of the possible hazards, and without this same knowledge there is no way for those who have custody of others to protect the ones under their charge. The medical and pharmaceutical professions have been advocating for a century that such products should be labelled in such a way as to be helpful. After about fifty years of discussion, the federal Caustic Poisons Act of 1927 was passed, which covered chiefly caustic and corrosive substances. In 1938, the Federal Food and Drug and Cosmetic act was passed, which beside regulation of foods and drugs, made some provision for chemicals. In 1947, the Federal Insecticide, Fungicide and Rodenticide Act was passed, covering a group of economic poisons.

In the past ten years, the Committee on Toxicology of the American Medical Association has been continuously active in studying the situation, and has developed a legislative plan to cover the great number of products which are hazardous, and for which regulation and labelling is not provided in the legislation mentioned above. The Committee on Toxicology has formulated a statute to provide uniform regulations and the precautionary labelling of household commercial, and industrial chemical products. The bill introduced May 25, 1959, by Mr. Curtis of Missouri, entitled "Uniform Hazardous Substances Act," is HR 7352 of the Eighty-sixth Congress. This bill is intended to serve not only the public, but also, the affected industries, since it encourages uniformity, and is sufficiently broad to assure complete coverage of all classes of chemical products.

A companion bill in the Senate is S 1283 and is before the Senate Committee

on Interstate and Foreign Commerce. The indications are that these bills will be acted upon during the current session. Their importance to the unknown thousands who would be spared suffering and possible death by the enactment is incalculable.

It is estimated that there are over six hundred thousand cases of poisoning requiring medical care each year. Fourteen hundred and fifty deaths were reported in the United States last year by poisoning from agents other than poison gases and spoiled food. Over four hundred of these deaths were children under five years of age. Reductions in these totals would be greatly helped if labels contained statements as to the contents, its dangers, and possible methods of treatment.

These proposed laws, as in the past, met serious opposition from the vested interests. There were efforts in various quarters to amend the bills restricting their scope of authority, which would actually only duplicate the effect of laws already in force. The Senate Interstate and Foreign Commerce Committee voted out a measure that exempted food, drugs, and cosmetics from the provisions of the proposed bills. Representatives from the manufacturers and sellers of patent medicines had objected strongly to the inclusion of drugs in the bill. Aside from these, other manufacturer resistance to legislation is based upon a number of reasons. Companies feel that warning labels will frighten the public and cut the sale of products. Others hesitate to list the contents because of fear that competitors will profit from the information.

The first of these objections is not borne out by experience as is shown in the descriptive labelling of drugs. When people found that they could read the contents of the drugs on the bottles they felt greater security in using them. The fear that trade secrets would be lost through the declaration of hazardous ingredients is ill founded because most well-informed competitors probably already know the contents of each other's products. The argument that industrial and commercial substances do not need labelling, because they are generally used in work under the direction of a competent supervisor, does not cover the subject. The type of management which provides protection in the use of dangerous chemicals is found in large plants with rigid systems. Such supervision would not exist in two thirds of our four and a half million business enterprises, which are retail trade establishments, stores, and service organizations.

The effort to restrict the laws to substances destined for household use only would leave unprotected the great mass of the working public, who come in contact with the various hazardous substances.

The proposed law provides for proper animal toxicity tests as the means of establishing the danger in a more or less quantitative fashion. The argument that such a requirement would tax the capacities of the available laboratories is not valid as the choice is between human suffering on the one hand and corporate profits on the other.

The laws further provide for proper identification and warning signs for strongly sensitized chemicals which cause an allergic inflammatory reaction in living tissue on contact. This is a desirable feature because signs are understood, and would guide a great segment of the population who would not read labels.

These proposed bills represent many years of investigative work and constructive legislative effort. The American Medical Association, through its Committee on Toxicology is attempting another important step in preventive medicine. It is to be hoped that such measures as these will not be weakened to the point of becoming ineffective through the action of vested interests. The influence of the medical profession should be exercised in behalf of this legislation.

Guest Editorial . . .

Watch Out!

It is quite possible the powers that be in Washington have more than one reason for complaining about prices of drugs. Senator Estes Kefauver's drug price investigating subcommittee would have us believe that the government's sole interest is "simply with the price of drugs — a price which must be paid by someone under any system of medical care". I think there is a psychological reason which they hope to keep under cover. This Senate antitrust investigation is just another cunning approach in the attempt to slip socialized medicine in at the back door. It appears to me that Mr. Kefauver almost gave this fact away in his opening statement when he said: "It is not the purpose of these hearings to question in any way the American system of private medical practice." I react to this statement in the same manner I would if a small boy should rush into my office and exclaim: "Doctor, someone batted a baseball through your back window—and I don't want you to think that I did it."

If these investigators' thoughts were just in the drug field, they should also be concerned about the quality as well as price. They certainly have shown a lack of interest in the cost of pharmaceutical research and manufacturing, and without research drugs would soon degrade in both quality and quantity. The Senator's line of reasoning in advocating that druggists be allowed to use generic instead of brand names, would throw the drug business into a tail spin within a short time. If one company spends a million dollars to produce a new drug, and another concern is allowed to copy the formula, pay none of the research cost, and market the product at a low price, the results would be disastrous. The better firms would go broke, initiative to find new drugs would be smothered and we would find ourselves advancing in reverse—back towards the "calomel and castor oil days".

I feel that these governmental probes are motivated, primarily, for publicity. If they can attract enough attention by their investigations of the major drug manufacturing firms, and lead the American people into believing that the prices of drugs are too high, it might be possible to gain a large number of sympathetic listeners.

They hope to stir up enough interest in the drug controversy to swing the spotlight away from the doctors for a while, give us a breathing spell, make us feel complacent and lessen our vigil against legislation like the Forand bill. It is their wish that we don't get wise to their twofold purpose of these investigations in relation to the Forand bill itself. First, they will attempt to convince the lay public that older people, on social security, will not be able to pay the high drug prices—and that the government should step in to help. Second, if these tactics could get a Forand type of legislation passed without enough medical publicity to stir up strong opposition—they would be in position to widen social security to cover everybody. Then we would have socialized medicine under another name.

People, consciously, or unconsciously, associate drugs and physicians together. An aroused populace against drug prices would not be too friendly towards the medical profession. Such a situation would gain recruits for a more effective battle against the free practice of medicine. While we sit on the side lines, apparently unmolested, and watch the steam roller attempt to crush the drug firms, we must remain alert. We could get caught napping like Hitler did one time during World War II—when the Allied soldiers were issued heavy, long-handled underwear. As soon as the Germans got

wind of it, they rushed up to Norway while our troops poured into Africa. It behooves us to watch out for all sorts of misleading tactics, because this drug battle is only a sham attack. The medical profession is their chief objective. They hope to find time to reorganize their forces, turn upon us without warning and launch a surprise attack where and when we might least expect it.

F. CLYDE BEDSAUL, M.D.

Floyd, Va.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

REPORT OF THE PRESIDENT

During the twelve months I have had the honor and privilege of serving as President of the Louisiana State Medical Society, many important events have transpired and much useful work has been accomplished.

I would like to open this report by paying full tribute to the Society officers, committee members, staff personnel and others without whose help this progress could never have been realized.

Perhaps the most significant project in which the Society participated during the past year has been the campaign to combat passage of the so-called Forand Bill which would extend social security benefits to include hospital and medical care. This insidious legislation, which is nothing more than a step in the direction of the complete socialization of professional medicine, has been singled out as one of the most damaging proposals ever to confront the public health and the medical profession.

Following the leadership of the AMA, your President and the officers of many component medical societies from various sections of Louisiana met in Alexandria to receive a thorough briefing on the Forand Bill and to plan a statewide campaign against it. After this meeting, many parish and district societies embarked upon a successful "grass roots" campaign to obtain thousands of letters from private citizens and various organizations, all directed to Louisiana Congressional representatives and expressing their opposition to the Forand Bill.

Representatives of the AMA, assisted by the Secretary-Treasurer and our Public Relations Counselors, made journeys to various parts of the state to address component societies on the subject of the Forand Bill and to rally their support. At this writing, the Forand measure has not yet come up for debate in Congress. However, we are confident our activities here in Louisiana, combined with those of state and component medical societies in other parts of the country, will be successful in convincing our representatives and senators that this highly dangerous legislation should be soundly defeated.

Much time, thought and effort have been devoted during the past year to the campaign to combat cultists and to protect the public against the various forms of cultism and those who seek to practice medicine without a license. A leading contributor to this campaign, once again, has been Dr. C. E. Boyd, of Shreveport, whom I wish to single out for special recognition for his untiring diligence and work. The manual on cultism which Dr. Boyd prepared some time ago has been completely re-written and brought up to date. This is probably one of the most complete publications on cultism ever assembled and it will continue to be of invaluable help in the campaign against the cultists here in Louisiana and elsewhere throughout the United States.

This being a legislative year, we are once again marshalling our forces to maintain the status quo of the Louisiana Medical Practice Act, and encourage all physicians to get behind us in this effort by contacting their legislators and insisting that they fight strongly against any efforts of the cultists to gain legal recognition in Louisiana.

As usual, during the political campaign in Louisiana earlier this year, a small group of Society members won respect and commendation for lending their support to certain candidates

who were favorably inclined toward the policies of the Society in regard to the Medical Practice Act.

Recent legislative proposals on both state and national levels have demonstrated the importance of the formation of an organization of physicians, **completely and legally independent of the Louisiana State Medical Society,** which could serve as a political action group for the profession. Such an organization would be able to be more effective and stronger than individual physicians in supporting political candidates friendly to the profession. Organizations of this type have been successful in other states.

Our campaign against the cultists this past year extended into the Federal courts where the Society was made an intervenor with the Louisiana State Board of Medical Examiners who were sued in an action contesting the legality of the Medical Practice Act. This subject will be gone into in detail in the report of the Louisiana State Board of Medical Examiners.

I am very grateful to the American Medical Association for their invaluable help and guidance, and to the AMA representatives who visited Louisiana on a number of occasions during the past year. These include Dr. F. J. L. Blasingame, Mr. Tom Hendricks, Mr. Aubrey Gates and Mr. Charles Johnson who helped greatly in the planning and execution of the anti-Forand campaign.

The AMA also deserves our thanks for co-sponsoring with the Louisiana State Medical Society and the state medical societies of Texas, Arkansas, Mississippi and Alabama the regional Conference on Aging in New Orleans. Your President had the honor of serving as moderator for the opening session of the conference and Dr. O. B. Owens, your President-elect, was moderator for the closing session. The conference elicited front page stories in the newspapers on the aging problem and what professional medicine is doing to meet this challenge.

The American Medical Education Foundation received strong support from Society members during the past year and we encourage your continued support for this worthy and important cause in the years that lie ahead. With the cost of medical education constantly on the rise, our young medical students are in need of all the support the profession can give them.

We are gratified to report that there has been a growing recognition among Society members toward the importance of maintaining membership in the American Medical Association, and I encourage all State Society members, who do not yet belong to the AMA, to join at the earliest possible moment. Your State Society, with only a few additional members joining the AMA, will be qualified to have three instead of two delegates in the AMA House of Delegates.

Your Society is very grateful for the help it received in its many endeavors from the Woman's Auxiliary, and the Auxiliary officers led by Mrs. J. T. Willis, President. At present there are approximately 750 State Society members whose wives are not members of the Auxiliary.

These doctors should encourage their wives to join the Auxiliary and to participate in its activities. A good way to do this is for the doctor to submit application and dues for his wife to the Auxiliary. By increasing the membership of the state Auxiliary, we will automatically increase the number of delegates to the AMA Auxiliary.

"Medical Progress" at the Louisiana State Fair last Fall was again an outstanding success in our continuing effort to educate and inform the public as to the various phases and facets of professional medicine. This most recent "Medical Progress" attracted several hundred thousand visitors over a ten-day period and was the subject of several articles in the Shreveport newspapers. The Shreveport Medical Society, which co-sponsored "Medical Progress" with the Louisiana State Medical Society, deserves our praise and recognition for their assistance. We are also very grateful to the various component medical societies which sent representatives to Shreveport to assist in staffing the exhibits during the time the Fair was in progress. It is our belief that "Medical Progress" is one of the most important public relations projects of the Society and has certainly proven its value during the three years we have pursued it as a Society function.

Acting on the authority of the Executive Committee, a new contract was executed during the past year restoring practically all the benefits which had been omitted during the previous year from the Medicare program.

The mutual problems of doctors, nurses and hospitals were discussed at a joint meeting of State Society representatives and representatives from the Louisiana Nurses Association and the Louisiana Hospital Association held during the past year. As a result of this meeting decisions were reached on several important areas of action.

This has been a year of travel for your President. Included in my record of journeys have been trips to visit medical societies in New Iberia, Lake Charles, Shreveport and a number of other communities. Other trips were made to attend "Founders Day" in Alexandria, the special Forand Bill conference in Alexandria, the Medical Progress exhibit at the Louisiana State Fair in Shreveport, the annual convention of the Louisiana Academy of General Practice in Baton Rouge, a meeting of the Committee on Public Policy and Legislation in Baton Rouge and to Atlantic City and to Dallas, Texas for meetings of the AMA. Also, your President attended meetings of the Orleans Parish Medical Society, the aforementioned meeting of hospital and

nursing groups, the Conference on Aging and a meeting of the New Orleans Dental Society.

Along with Dr. Philip H. Jones and Dr. Hugh T. Beacham, your President participated in a conference with Mr. Basil O'Connor, Executive Director of the National Foundation, at which time Mr. O'Connor explained in detail the new aims and purposes of the National Foundation. My impression is that the Foundation intends to enter the practice of medicine in a big way, covering every type of physical defect, malady and disease.

As stated at the beginning of this report, the administration of any President of the Louisiana State Medical Society can be no more successful than the support he receives from his officers, committee members, members-at-large, the office staff and special consultants.

Whatever accomplishments the Society has realized during the past year are directly traceable to the cooperation and assistance I have received from many people, including your Past President, Dr. Arthur Long; your President-elect, Dr. O. B. Owens; the Editor of the Journal, Dr. Philip Jones; Miss Annie Mae Shoemaker and her highly efficient staff of assistants at State Society headquarters; our Legislative Consultant, Mr. Percy J. Landry, Jr. and our Public Relations Counselors, Mr. Paul Perret and Mr. Paul Kalman.

I also wish to thank the chairmen and members of our various committees and councils for the work they accomplished, and the members of the Executive Committee for the many hours they expended in attending meetings and working on the affairs of the Committee.

Last but far from least, I wish to express my unbounded gratitude to Dr. C. Grenes Cole, Secretary-Treasurer, for his tolerance of my many mistakes and shortcomings while serving as President of your Society. Without Dr. Cole to help me, I truly would have been lost.

In closing, I most humbly thank the Society itself for allowing me the privilege of serving as your President.

Recommendations

1. The Society continue to support and maintain the liaison group which has been established with the Louisiana Hospital Association and the Louisiana Nurses Association.

2. All socialistic types of legislation (e.g., the Forand Bill) be vigorously fought by every Society member interested in maintaining his freedom.

3. Society members give their active support to the Smathers - Morton - Keogh - Simpson Bill which, at this writing, is being closely watched.

4. The Society continue and expand its sponsorship of Medical Progress exhibits at the Louisiana State Fair as this has proved to be one of the most outstanding and successful positive public education projects in which the medical profession in Louisiana has ever participated.

5. The Society continue the services of our Public Relations Counselors and Legislative Consultant who have performed such valuable work during the past five years.

6. Society members be encouraged to increase the scope of their contributions to the American Medical Education Foundation.

7. All eligible non-members of the AMA be encouraged to join, and copies of our new brochure, explaining the benefits of membership, be circulated among these doctors.

8. Each member of the Society whose wife is not presently a member of the Woman's Auxiliary pay her dues ($1.50 per year), thereby enrolling her in the Auxiliary; also encourage their wives to take active part in the work of the Auxiliary.

9. The Society continue to support the Louisiana State Board of Medical Examiners in every possible way in the campaign to protect the Medical Practice Act.

10. The Society give careful study and consideration to the work of the National Foundation before any type of official approval or recognition is given to the Foundation.

11. Society members begin work on organizing an independent group of physicians for political action; membership in this organization to be completely voluntary and legally separate from the State Society.

W. ROBYN HARDY, M. D., President

HEALTH LEVELS AND INCOME AMONG THE STATES

The following is a complete report from the Health Information Foundation on "Progress in Health Services," which appeared in their March 1960 issue. We feel that the information on "Health Levels and Income Among the States" should be of interest to all our members.

Marked improvements in health, indicated by substantial reductions in mortality, have occurred in the United States since earlier in the century. But although all states and probably all other major population groups have shared in this improvement, the extent of the reductions has been quite varied.

In general the declines in mortality have been greater where the levels of mortality were initially higher, so that the differentials between states and population groups are now narrower than formerly. This has been the case, for example, for states with low average per capita incomes, where mortality was relatively high. Today their overall mortality level is virtually identical with that in the upper-income states.

However, this overall similarity in mortality rates is the product of contrasting ratios at each end of the age scale. For example, the low-income states have poorer mortality rates than the high during infancy, the younger ages, and even the

adult ages. At ages 45-64 this holds true to a relatively minor extent, but at 65 and over the record is better in the low-income states. In addition, the ratio of mortality rates in the low- to those in the high-income states varies by cause of death, although in many instances the differentials are now narrower than in former years.

These findings are derived from a survey by Health Information Foundation of the relationship of mortality to gross differentials in economic level among the states in the U.S. This approach represents one alternative, essentially aimed at the same problem, to the customary method of determining economic or "social class" differences in health by comparing the mortality patterns of persons in various groups of occupations. Unfortunately, no completed studies of occupational mortality are available for any large area in the United States for any year later than 1930. In contrast, the study reported in these pages not only employed current data, but was able to derive trends by comparing current statistics with those of former years.

In this study the mortality patterns of the 10 states (including the District of Columbia) ranking highest in average per capita personal incomes were compared with the records of the 10 lowest states. The compositions of these top and bottom groups have varied somewhat over the years, and this analysis used separate groups of states in specific years, as required, for which to derive mortality rates. The years covered were 1930, 1940, 1950, and 1957. The income figures used in selecting the states were those compiled and published by the Office of Business Economics of the U. S. Department of Commerce. Mortality rates were computed from published reports of the U. S. National Office of Vital Statistics.

In the high-income group, these eight states ranked consistently among the top 10 in each of the years covered: California, Connecticut, Delaware, District of Columbia, Illinois, Nevada, New Jersey, and New York. Each of the following five states also were included in the top 10 in at least one of the four years: Massachusetts, Michigan, Ohio, Rhode Island, and Washington. Similarly, the bottom 10 included the following during each of the four years: Alabama, Arkansas, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee. It also included these at least once: Louisiana, New Mexico, North Dakota, South Dakota, and West Virginia.

The high-income group in all years consisted to a large extent of the most highly industrialized and urbanized states, especially those in the Northeast. But it also included some from the Middle and Far West. The low-income states, on the other hand, were generally (but not exclusively) in the South, much more rural in character and with large nonwhite populations.

Although the groups at each end of the income scale included a stable core of states, there was nevertheless some shift in rank order within both the highest and the lowest 10. Also, the range of difference in average per capita incomes between the highest and lowest groups narrowed between 1930 and 1957. Thus the average per capita income figure for the top 10 was over three times as high as that for the bottom in 1930, but less than twice as high in 1957.

The high-income states enjoyed superior health facilities and resources during these years, but the extent of their advantage and its trend varied for specific facilities. For example, the differential in hospital beds narrowed. The high-income states in 1935-37 reported over 2½ times as many nonfederal general and special hospital beds per capita as did the low-income stakes, but by 1957 the comparable ratio was only 1¼. The ratio of high- to low-income states in physicians per capita rose from 1.7 in 1930 to 2.1 in 1940, but dropped to 1.9 in 1950 and to 1.8 in 1957. For dentists per capital, the ratio of high- to low-income states dropped from 2.9 to 1930 to 2.2 in 1958.

The superior health facilities in the top-income states were reflected to only a small extent in the overall mortality rates in 1930 and almost not at all since then. Thus in 1930 the age-adjusted mortality rates of the low-income states, 1,400 per 100,000 population, exceeded the comparable rate of the high-income states, 1,240 per 100,000, by 13 per cent. But the excess in rate of the low-income states dropped to 7 per cent in 1940 and 5 per cent in 1950. By 1957 deaths per 100,000 were 842.2 for the low-income and 837.5 for the high-income states, a difference of less than 1 per cent.

Patterns of mortality by age

Trends in the patterns of mortality by age have varied considerably from the overall trends. Today at ages under 45 mortality rates are generally higher in the low-income states; at 45-64 there is almost no difference; while at 65 and over mortality rates are higher in the high-income states.

In infant mortality rates (death under one year per 1,000 live births), a measure of health traditionally considered a sensitive index of environmental conditions, the differential between these groups of states has narrowed since 1940, although a substantial differential still exists. In 1930 the infant mortality rate in the low-income states averaged 74.2, an excess of 27 per cent over the comparable 58.3 in the high-income states. By 1940 the *rate* in both groups of states had dropped considerably, but the decline was less rapid in the low-income states, and their relative excess over the high-income states actually rose to 50 per cent. But by 1950, again with the rates in both groups of states declining, the

excess had dropped to 38 per cent and by 1957 to 24 per cent, or near the 1930 level.

The low-income states also exceeded the high in the components of infant mortality—i.e., in neonatal mortality rates (death of infants under one month) and post-neonatal rates (second through twelfth months, gnerally less influenced by "biological" factors and more sensitive to the "environment"). Thus the excess neonatal mortality in the low-income states rose from 18 per cent in 1930 to 29 per cent in 1940, then dropped back to 18 per cent in 1950 and to 10 per cent in 1957. For post-neonatal mortality the comparable per cents of excess mortality in the low-income states were 40, 94, 95, and 68.

At ages 1-24 and 25-44 the excess in mortality rates in the low-income states was large in 1930, but as mortality declined sharply in both groups of states the differential was reduced somewhat. At ages 1-24 the mortality rate in the low-income states was 372.0 per 100,000 in 1930, or 38 per cent above the 269.3 of the high-income states. By 1957 the comparable figures had dropped to 94.1 and 73.1, respectively, an excess of only 29 per cent. At ages 25-44 a similar reduction in the rate took place, and here the differential narrowed from 50 to 32 per cent.

At the middle and upper ages, however, these trends were not repeated. For mortality rates at ages 45-64 the very slight differential of only 4 per cent in 1930 in favor of the upper-income states remained remarkably stable; in 1957 the figure stood at 3 per cent. The mortality rates themselves in both groups of states were substantially reduced from 1930.

In contrast, the reduction in mortality rates since 1930 at ages 65 and over, while relatively small, was larger among the low-income states. As a result, the former small excess in mortality at these ages in the low-income states was reversed: By 1957 mortality rates at age 65 and over in the low-income states were only 90 per cent as high as those in the upper-income states.

Leading causes of death

The changing relationship of mortality in the low- and high-income states has resulted largely from the general decline of communicable diseases as leading causes of death. These diseases, once primarily responsible for the higher mortality rates in low-income states, have since been replaced as leading causes of death by heart disease and other major cardiovascular-renal conditions and by the malignant neoplasms (cancer). Many of these latter conditions are often far more prevalent in high-income states.

However, a trend of reduction in differentials has also been evident (although to a lesser extent) among many of the more important causes of death. In some instances causes that had lower rates in the low-income states in 1930 increased more rapidly there than elsewhere. As a result, mortality rates from such causes in the two groups of states were much closer to one another in 1957 than they had been previously.

For example, diseases of the heart, with 296.9 deaths per 100,000 in 1930 in the high-income states, had a rate of only 211.0 in the low-income states, 71 per cent of the upper figure. Since then mortality from this cause has risen throughout the country, but at a faster rate in the low-income states; and the differential has therefore decreased. In 1957 diseases of the heart accounted for 338.5 deaths per 100,000 in the high-income states and 290.7 in the low, so that the ratio of low to high had risen to 86 per cent. For arteriosclerotic heart disease the comparable rise was similar, from a ratio of 55 per cent in 1930 to 72 per cent in 1957.

A somewhat similar trend held true for mortality from malignant neoplasms (cancer). In 1930 cancer (all forms) caused 133.2 deaths per 100,000 in the high-income states and 78.8 in the low, or only 59 per cent as many in the latter. Between that date and 1957 the rate in the high-income states, 144.2, rose relatively little, but mortality in the low-income group climbed to 110.6. As a result, the 1957 ratio of mortality in low- to high-income states rose to 77 per cent.

In mortality from cancer of the digestive system, the comparable ratio of rates in the low-income states to the high also rose, from 50 to 67. The ratio rose especially sharply, from 27 to 70, in mortality from cancer of the respiratory system, and somewhat less sharply in leukemia and aleukemia, from 49 to 82 over these years.

The pattern for diabetes mellitus resembled that for heart disease and cancer in that here, too, the gap between mortality rates in the low-income and high-income states narrowed. In 1930 mortality rates from this disease in the low-income states were only 57 per cent of the high, but by 1957 the ratio had risen to 80.

Another example of this type of convergence is suicide. In both 1930 and 1957, this cause of death occurred less frequently in the low-income states than in the high. But while suicide death rates declined in both groups between 1930 and 1957, the decline was sharper in the high-income states and the ratio of suicide mortality rates in the low-income states to those in the high increased from 59 to 91.

For one leading cause of death, influenza and pneumonia, the ratios converged only after 1940. In 1930 death rates from this cause stood at high levels in both groups of states—99.2 per 100,000 in the high-income states and 133.6 in the low—an excess of 35 per cent in the latter. By 1940 mortality rates in both groups of states had dropped, but the excess mortality in the latter group rose to 87 per cent. Nevertheless, the excess was down to 56 per cent in 1950 and to only 17 per cent in 1957.

For tuberculosis the convergence was much less

definite. Mortality from this disease in the low-income states in 1930, 100.2 per 100,000 population, exceeded the comparable rate in the high-income group, 71.3 per 100,000, by 37 per cent. But the excess dropped to 35 per cent in 1940, 34 per cent in 1950, and then to 32 per cent in 1957. The rates by this time were down to 9.5 and 7.2, respectively.

Similarly, homicide death rates were 18.4 per 100,000 in the low-income states in 1930 compared to 6.3 in the high-income states, or nearly three times as many. Although the rates in both places were much lower by 1957, 9.0 and 3.4, respectively, the ratio between them continued at nearly as high a level as it had been formerly.

Rates from another leading cause of death, vascular lesions of the central nervous system, fluctuated in the low-income states at about one-third above those in the high-income states between 1930 and 1957. Although the mortality rates in both groups of states dropped during these years, the per cent of decline in both were roughtly similar.

Finally, among the leading causes of death, the differential for accidents (all forms) changed directions between 1930 and 1957. In 1930 the mortality rate from accidents was 82.4 per 100,000 in the high-income states against 75.8 in the low, the latter only 92 per cent of the former, By 1957 mortality in the two groups had declined to 46.3 and 61.4, respectively, but now the low-income rates exceeded the high by 33 per cent.

Mortality from motor-vehicle accidents rose in the low-income states between 1930 and 1957 but declined in the high-income states. The reversal in *direction* of the differential was similar to that for all accidents. The mortality rate in the low-income states as a proportion of that in the high increased from 75 per cent in 1930 to 141 per cent in 1957. Meanwhile, the comparable ratio in mortality from all other accidents increased from 102 to 126.

Narrowing the Health Gap

The last few decades have given us convincing proof that increased spending on health pays big dividends in reducing mortality rates and communicable diseases among the American people. Since 1930, for example, the overall U.S. death rate has declined by 37 per ecnt. In roughly the same period the per cent of each consumer dollar spent for medical care has risen sharply, by about 43 per cent.

All states, rich and poor, have shared in the general improvement. But as this bulletin points out, relatively the greatest gains in health levels have been made by the states at the bottom of the economic scale. In 1930, for example, mortality rates in the 10 states with lowest average per capita income were 13 per cent higher than those in the 10 wealthiest states. Now the gap has almost closed: Death rates in the 10 poorest states in 1957 are less than 1 per cent higher.

Concomitant with this trend, the poorer states have been catching up with the wealthy in income levels. In 1930 the per capita income for the 10 wealthiest was over three times the average for the 10 poorest; now the average of the top 10 is less than twice that of the bottom 10.

As the poorer states have improved financially, they have greatly stepped up their spending for health services and facilities. Hospital construction, for instances, has raised the level of general hospital beds closer to the nationwide average in the states where incomes are generally low. Besides supporting additional facilities and personnel, higher incomes in the poor states have undoubtedly improved educational and nutritional levels, as well as many other aspects of daily living that help lengthen the average person's life span.

Some low-income states, of course, still lag behind in the use of modern medical facilities. But the overall trend is encouraging.

—GEORGE BUGBEE, *President*
Health Information Foundation

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Ascension	Third Tuesday of every month	
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Lafayette	Second Tuesday of every month	Lafayette
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

POSTGRADUATE SEMINAR IN ARTHRITIS AND RELATED DISEASES

JUNE 11 AND 12, 1960—DIPLOMAT HOTEL. HOLLYWOOD-BY-THE-SEA, FLORIDA

(Adjacent to Miami Beach)

Immediately following the Annual Meeting of the American Rheumatism Association and immediately preceding the Annual Meeting of the American Medical Association.

SPONSORS:

Florida Chapter of the Arthritis and Rheumatism Foundation.
University of Miami Medical School.
University of Florida Medical College.
South Florida Rheumatism Society (Affiliated with the American Rheumatism Association).

FACULTY INCLUDES:

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Emphasis will be placed on Diagnosis and Management of the more common Rheumatic disorders.

Course is acceptable for 8 hours of Category I credit by the American Academy of General Practice.

Tuition $15.00 payable in advance. Make checks payable to Treasurer, Florida Chapter, Arthritis and Rheumatism Foundation, 1206 Huntington Medical Building, Miami 32, Florida.

For further information write to SEMINAR COMMITTEE, Florida Chapter, Arthritis and Rheumatism Foundation, 1206 Huntington Medical Building, Miami 32, Florida.

DON'T JUST COUGH, WORRY ABOUT IT

The next time you cough, don't exclaim, politely or otherwise, that, "It's nothing—just a cough." In the process, you may have triggered a hernia, caused a hemorrhage or fractured one or more ribs. Strenuous coughing can even be fatal.

Writing in the March issue of **GP** magazine, Dr. Andrew L. Banyai, a Chicago chest physician, points out that coughing "can produce many undesirable side reactions . . . " It can spread an infection within the lung or from one lung to the other, can also lead to undue fatigue, exhaustion and a poor appetite.

Dr. Banyai adds that coughing causes a sudden blood pressure increase that may, in turn, cause a headache, a hemorrhage or esophageal bleeding. In rare instances, coughing has fractured the sternum or breast-bone. When death occurs, it is usually the result of a blood pressure imbalance and insufficient blood in the coronary arteries.

Because everyone coughs occasionally, many people ignore even persistent coughs, Dr. Banyai says. Stressing that this is unwise, he adds: "Negligence and procrastination may mean progression of pulmonary tuberculosis, fungus infection, wasting diseases of the lung, spread of primary or metastatic malignant tumors, with their chronic invalidism or prospect of fatal termination."

Dr. Banyai urges his colleagues to thoroughly examine the patient who demands "cough medicine." Important factors to consider include the patient's weight and age, the character and cause of the cough and the proper therapy.

Some people, Dr. Banyai contends, suffer from "tussive insufficiency" or a lack of ability to cough satisfactorily and thus expel inflammatory products or materials from the air passages. Extreme obesity can cause tussive insufficiency and in older patients, this condition may be

caused by less resilient thoracic ligaments and lungs.

Although Dr. Banyai agrees that relief can often be obtained by breathing into a paper bag, he emphasizes that this must be done properly and adds that it can have dire results.

LSD HELPS HOPELESS MENTAL PATIENTS

LSD-25, a drug capable of bringing back childhood memories with the sharpness of a 3-D movie, is helping fight mental illness in persons formerly considered hopeless, two phychiatrists said recently.

Drs. Arthur L. Chandler and Mortimer A. Hartman of the Psychiatric Institute of Beverly Hills, Calif., reported on the use of the drug (Lysergic Acid Diethylamide) in 110 patients in the March Archives of General Psychiatry, published by the American Medical Association.

"With LSD as an aid, it has been possible to 'reach' and work with patients who are otherwise unresponsive to psychotherapy," they said.

. . . there were a number of cases in which previous therapy, sometimes with several different therapists, had produced little or no improvement but in which introduction of LSD-25 effected a real break-through, followed by continued therapeutic improvement.

"In the study are several patients who had had as much as six years of previous analytic therapy, with small benefit, and who, after 20 to 40 LSD sessions, either were discharged as markedly improved or appeared to be well on their way to the resolution of their basic problems."

They also said "because initial therapeutic gains can occur in a dramatic manner and, after a shorter period than is the case with psychotherapy in general, some patients have sought treatment and benefited who would never have accepted the long-term schedule required in psychoanalytic or most other forms of psychotherapy."

The 110 patients studied included psychoneurotics and those with personality disorders, trait disturbances, and other problems, such as addiction to alcohol and/or narcotics. There were 62 men and 48 women ranging in age from 15 to 62.

A total of 88 showed improvement ranging from "slight" to "outstanding" after an average of six sessions with LSD. The group that showed the most progress were the manic-depressives, those who are alternately highly elated and deeply depressed.

"An encouraging result is the promising progress of those with addictions. Most of these patients were alcoholic problems, but seven of these also had a recent history of drug addiction. The fact that this group did as well as it did suggests the possibility that LSD-25 may be a valuable therapeutic aid in work with this most difficult group."

Drs. Chandler and Hartman said the drug produces visual illusions, but these could not be properly defined as hallucinations.

"The most obvious difference between imagery and fantasy which occurs with LSD-25 and hallucination is the factor of insight," they said. "Under LSD-25 the patients know that they are merely experiencing a 'waking dream' or remembering some experience from the past. They do not believe that it is actually happening."

The psychiatrists also described how the drug unlocks memories stored in the unconscious.

"It is very common for early childhood memories that have been repressed or forgotten to emerge, usually with great clarity of recall," they said.

"Scenes may be pictured with great vividness of color and other detail, and the patient feels himself to be back in the situation and experiences the affects in all the original intensity. Some patients describe it by saying that it is as though a 3-D film tape were being run off. . . .

"Several patients have checked with parents concerning incidents or certain details, such as household furnishings, with striking confirmation, especially when it is considered that some of the memories dated back as early as the first year of life."

The drug's ability to bring back early memories in nearly all patients proved in some to be of "tremendous therapeutic benefit," they concluded.

ULTRAVIOLET RADIATION CUTS OPERATING ROOM INFECTIONS

Ultraviolet radiation was recommended recently as an effective means of preventing infection from antibiotic-resistant bacteria in operating rooms.

A method that has kept operating room infections to a bare minimum at Duke Hospital in Durham, N. C., was described by Dr. Deryl Hart in the March 5 Journal of the American Medical Association.

"It has always been our opinion that keeping pathogenic bacteria out of a clean wound is preferable to trying to control their growth or to kill them after they enter. . . . ," Dr. Hart wrote.

"With the present widespread distribution of antibiotic-resistant staphylococci, prevention of such contamination is now all the more important."

"No area of the body is inaccessible today to the trained surgeon," according to an accompanying Journal editorial. "However, with these larger, more traumatizing, and longer procedures, 'unexplained infections' have become progressively more common and more critical."

Ultraviolet radiation, which kills bacteria in the air, has been in use at Duke Hospital for more than 20 years in as many as 15 operating rooms.

Dr. Hart said the results obtained "have been nothing short of miraculous.

"In the Duke hospital so-called unexplained infections in clean operative wounds not only have been explained but have been eliminated, to a great extent, by a variety of measures aimed at limiting the contamination of the air with pathogenic bacteria, and by the use of ultraviolet radiation to kill the remaining bacteria that inevitably get into the air and, by sedimentation, onto exposed surfaces.

"We consider the air route of spread to be the greatest factor . . . and therefore to be responsible for most of the so-called unexplained infections in clean operative wounds today."

Dr. Hart said destroying bacteria floating in the air obviously offers protection regardless of the source of the bacteria, i.e., whether it originates in the respiratory tract of operating room personnel, contamination of the room, clothing or blankets, or air from other parts of the hospital.

It was found that air contamination rose rapidly in a bacteria-free operating room when it was occupied. Studies showed that staphylococci were the main contaminants and were directly related to the number of persons in the room, how long they remained, and the time of the year, the worst season being winter.

Dr. Hart said it also was found that the average mask, even when two are worn, is inadequate to control air contamination, and sterilization of the air within the air ducts does not reduce the bacteria content of the air to a safe level.

Protection from the ultraviolet rays can be afforded patient and personnel without any inconvenience, he pointed out.

The eyes of the personnel are guarded from direct radiation by an eye shade and from reflected radiation by glasses. The eyes of the patient are closed. For frequent and long periods of exposure, he said, the skin is covered or shaded.

On the basis of Duke Hospital's long experience, Dr. Hart recommended that "ultraviolet radiation be used continuously as an addition to aseptic operating room technique."

A.M.A. EMBARKS ON MAJOR STUDY OF MEDICAL CARE COSTS

A "Commission on the Cost of Medical Care," to delve into every phase of medicine where cost or spending is involved, was announced by the American Medical Association recently. An initial grant of $100,000 was appropriated to launch the study.

"This study-project is being undertaken," said Dr. Louis M. Orr, Orlando, Fla., president of the A.M.A., "because the American public is spending increasing amounts of money for all types of medical care. These expenditures involve the peoples' lives, health, and pocketbooks. We would like to find where economies may be achieved in the best interests of the patient. The commission will analyze the cost picture from every angle and try to come up with some sound advice and suggestions."

The commission, whose members will be announced shortly, will serve as a "little Hoover Commission" to study all medical care costs, including doctors' fees, hospital charges, nursing cost, drug expenditures, and health insurance premiums.

CLINICAL CONFERENCE SCHEDULED

A Clinical Conference on Cancer of the Female Genital System will be held at The University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, Texas, October 21 and 22, 1960.

Treatment procedures for patients with carcinoma of the cervix, endometrium, and ovary will be discussed in lectures and panel discussions. The experience and policies of treatment at The University of Texas M. D. Anderson Hospital will be reviewed.

Dr. Hans Kottmeier, of the Radiumhemmet in Stockholm, Sweden, will be the guest speaker at the Conference. The program is under the direction of Felix N. Rutledge, Section of Gynecology, Department of Surgery, M. D. Anderson Hospital and Tumor Institute.

AMERICAN COLLEGE OF SURGEONS RECEIVES GRANT

A grant of $146,275 by The John A. Hartford Foundation, Inc., of New York, to the American College of Surgeons to inaugurate a program for improving the medical management of the surgical and injured patient was announced recently by Mr. Ralph W. Burger, president of the Foundation and Dr. I. S. Ravdin, chairman of the Board of Regents of the College.

"This grant will permit the College to enlarge its long-established activities in the field of trauma, both at the national and local levels," stated Dr. Ravdin.

The American College of Surgeons is unique in that it has had a functioning Committee on Trauma since 1922, and currently has a National Committee on Trauma and 241 state and local trauma committees located throughout the United States and Canada. With this grant, according to Dr. Ravdin, these committees and cooperating organizations will be able to work more effectively in a concentrated effort to determine patterns of care of the injured patient, and to

inaugurate improvements in this care.

The new program will permit immediate establishment of pilot projects in selected cities, employment of a field staff to provide personal guidance—both to the public and to the profession—throughout America, and initiation of an evaluation program, all with the primary goal of improving care of the surgical and injured patients. It is expected that the College's current efforts in this field will also be implemented by the grant, particularly in the following problem-area programs: effective safe transportation of the injured, first aid and self-aid, organization and staffing of the several elements of hospitals involved in the emergency medical care of the injured, demands caused by disasters and education of the medical profession in the management of trauma at the undergraduate and graduate levels.

CERTAIN DRUGS CAN CAUSE GOUT

Certain drugs for treating hypertension should not be given patients susceptible to gout, a heart researcher has warned.

"For the present, it appears propitious to avoid the use of chlorothiazide and other benzothiadiazine compounds in patients with a history of gout and to suspect the possibility of gout in patients treated with these drugs who complain of aching and painful joints," Dr. Leon J. Warshaw, of the Cardiovascular Research Unit, Beth Israel Hospital, New York, said:

Writing in the Feb. 20 Journal of the American Medical Association, Dr. Warshaw said hyperuricemia, an excess of uric acid in the blood and a characteristic of gout, "is a relatively frequent concomitant of chlorothiazide administration....

"Although the mechanism by which chlorothiazide produces hyperuricemia, and the relationship between this hyperuricemia and the clinical manifestations of gout, are not clearly understood, these phenomena are a drawback to the use of this drug, especially in patients with a history of gout," he said.

Dr. Warshaw said a recent report suggesting a relationship between hyperuricemia and coronary artery disease and heart attacks "makes it urgent that the true significance of the hyperuricemia be established."

Gout is a disease in which the primary symptom is a painful inflammation of the joints of the hands or feet, and especially the big toe.

NINE PHYSICIANS ENDORSE NEW RESUSCITATION TECHNIQUE

An "improved" and "simplified" method of oral resusciation was recommended by nine physicians in the Feb. 20 Journal of the American Medical Association.

Briefly, the new technique calls for the rescuer to tilt back the head of the victim as far as possible and inflate the lungs through the victim's nose or mouth.

The "head-tilt method" was studied in seven research centers in six cities in this country and abroad—Buffalo, N.Y.; New York City; Los Angeles; Copenhagen, Denmark; Karlskrona, Sweden, and Zurich, Switzerland.

"After one year of these coordinated studies in over 1,000 anesthetized human beings, results of use of the head-tilt oral method, with inflation through the victim's nose, have been uniformly satisfactory except in the group of newborn infants, which involves special problems," the article said.

The physicians suggested that the revised technique replace the old mouth-to-mouth method. The head-tilt method works better than any other field method of emergency artificial respiration and should be tried first in all cases, they said.

Nasal inflation is preferred, they said, since it prevents air from getting into the victim's stomach. It also is best suited for the victim whose jaws are too tightly clenched to be opened.

By tilting back the victim's head, his air passage are opened, they pointed out.

ORAL THERAPY REDUCES DIABETIC'S INSULIN NEEDS

Treatment of mouth diseases in diabetics has been found, in some cases, to reduce their insulin requirements.

Capt. Ralph C. Williams Jr., a physician, and Maj. Charles J. Mahan, a dentist, of the U.S. A.F. Hospital, Maxwell Air Force Base, Air University, Montgomery, Ala., reported on the effects of oral therapy in nine diabetics in the Feb. 20 Journal of the American Medical Association.

"Seven of the nine patients with diabetes and periodontal oral disease who underwent elective periodontal therapy showed significant subsequent reduction in insulin requirements," they said.

Insulin is used to control diabetes. The nine patients suffered an inflamation of the gums or the tissues surrounding a tooth, in addition to diabetes. They were treated by surgery or extraction of teeth.

"Recently we have been impressed by the striking frequency with which the relatively young diabetic patients seen in a military practice manifest extensive periodontal disease...," they said.

Although there are conflicting theories on what causes periodontal disease, they said, it was their "impression that diabetes and chronic, destructive periodontal disease are separate entities," but added:

"Diabetes may be adversely influenced by the presence of periodontal disease, and conversely periodontal disease may be more severe in the diabetic state."

BOOK REVIEWS

A History of Ophthalmology; by George E. Arrington, Jr., M. D. New York, MD Publications, Inc., 1959. pp. 174. Price $4.00.

This monograph, the third of a planned series on the history of the various medical specialties, is a scholarly, well-written book, with a rather distinctive approach, in that the history of ophthalmology is related against the background of the history of mankind. As is pointed out in the preface by the distinguished medical historian, Félix Martí Ibáñez, Dr. Arrington, who is Associate in Ophthalmology at the Medical College of Virginia, is obviously a man who is steeped in historical values as well as in the clinical and research aspects of ophthalmology.

This book tells the story of this specialty from prehistoric times to the present electronic era. The scientific study of the eye was long delayed because of the early association of this structure with superstitions, myths, legends, and religious symbolism. The results of delay were tragic in the countries in which such conditions as ophthalmia, cataracts, and trachoma were widespread.

The earliest knowledge concerning diseases of the eye dealt, as might be expected, with those affecting the external eye. Spectacles were used as early as the thirteenth century, centuries before the physiology of vision was understood. Leonardo da Vinci, with other painters in the Middle Ages, played an important part in the elucidation of ocular anatomy. After the dissection of many cadavers, he concluded that the central organ of vision was not the lens, as had previously been thought, but the retina, though he seems to have believed that the image falls only on the head of the optic nerve. He also devised mirror-grinding instruments, which eventually led to the development of refined lens-grinding techniques.

As time passed and more and more knowledge concerning the anatomy of the eye and its functions was accumulated, the groundwork was thus laid for the technical developments of the nineteenth century, which were made possible by the discovery of anesthesia, the development of the new science of bacteriology, and the introduction of antiseptic and then aseptic surgery.

When they are brought together, as the author brings them together in a page or two of this book, the diagnostic and therapeutic developments and refinements of the present century are truly amazing. Among them are slit-lamp microscopy; slit-lamp examination of the posterior segment; gonioscopy, binocular ophthalmoscopy; stereoscopic color photography of the anterior segment and fundus; stereocampimetry; angioscotometry; eikonometry; contact and aniseikonic lenses; trifocal lenses; plastic implant lenses; reading aids for the visually handicapped; ultraviolet light; flicker fusion fields; ophthalmoscopy with monochromatic, polarized, and red free light; the eye bank; new methods of treating retinal detachment; scleral resectional keratoplasty; anesthesia for cataract surgery; techniques of akinesia; antibiotics and chemotherapy in infections; penicillin in ophthalmia neonatorum; the use of cortisone and similar agents; new methods of treating glaucoma; filtering and goniotomy surgery; X-ray and electronic localization of metallic foreign bodies; preventive measures in retrolental fibroplasia; radioactive element uptake by tumors and their plotting by Geiger counter methods. The list seems almost incredible after one has read in this book the long way ophthalmology had to come before it reached this stage.

The book has a number of useful appendices. One of them is a world list of ophthalmologic periodicals. Another is an ingenicus chart relating the chronology of ophthalmology and correlating the major contributions of a number of ophthalmolcgists with the appropriate stage of world history; a more detailed chart would have been welcome. Still another appendix is a list of ophthalmological organizations, which is not complete; it omits the name of the New Orleans Academy of Ophthalmology, among others. The concept of all of these appendices is, however, excellent. The index is adequate.

Two sentences particularly impress one in reading this book: One is that the vast amount of technical and medical information available today concerning the anatomy of the eye, the physiology of vision, and the pathology, diagnosis, and therapy of ocular diseases makes it difficult to conceive of a time when none of this knowledge existed. The story of its gradual accumulation is well told in this history.

The second sentence which strikes one particularly is a warning for the ophthalmologist of the dangers of the contemporary trend of relying too much upon *things*, with the result that "during an *electrical* power failure, ophthalmological practice all but ceases." As history shows, and as this book emphasizes, the advances that have been made are of infinite value, but the ophthalmologist must still rely upon the clinical potentialities of the senses God gave him.

GEORGE M. HAIK, M. D.

Fads and Fallacies in the Name of Science; by Martin Gardner. New York, Dover Publications, Inc., 1957. pp. 363, Price $1.50.

Originally published under the title *In the Name of Science,* this is the most complete coverage of unorthodox medicine since the similar volume by Fishbein. Such a book serves to equalize the coverage which the media of publicity are accustomed to give to the facts of medicine.

Contained in the volume are discussions of naturopathy, iridiagnosis, zone therapy, food fads, orgone sex therapy and even the story of the Bridey Murphy episode. It is an able and well-organized presentation of topics which have been furiously argued by proponents and opponents and will serve a most useful and informative purpose at very reasonable cost.

MARY LOUISE MARSHALL

Anatomy of the Human Body; by Henry Gray, 27th Edition, 1959, Lea and Febiger Philadelphia, Pa. pp. 1458. Price $17.50.

The 27th edition of this famous text marks the centennial of its publication and continues with some modifications, the general format of its previous printings. It is composed of sections on Embryology, Topographical Anatomy, Osteology, Joints and Ligaments, Muscles and Fasciae and the various Systems; Cardiovascular, Lymphatic, Nervous, Integumentary, Digestive, Urogenital, and Endocrine. In addition to descriptions of gross structures in each section, there is a brief review of their function, developmental history, and microanatomy, together with a brief but pertinent bibliography.

The editor in his preface to this edition, notes several of the problems encountered in deciding format changes, based on suggestions and advice from various sources. Among these, are length and proportion of the various sections, inclusion of Embryology and Histology, and especially, that of treatment of the Central Nervous System. There is particular concern about attempting to make this volume serve several purposes without increasing it to impractical length. It seems that rather a middle course has been chosen, that of changing bits here and there while retaining the plan used in previous editions.

The question arises as to whether a middle course can be profitably pursued. There has been a tendency in recent years to decrease the total time devoted to Gross Anatomy. This makes impractical for medical students an encyclopedic text and demands the most astute editorial judgment on what can be eliminated. Obviously no decision on this point can please all would-be users of any volume. One approach to this problem has been that of elimination of collateral subject material within the anatomical specialties, e.g., Microanatomy, Embryology, and even Neuroanatomy. There is considerable doubt that an abstract or precis of such collateral material is adequate or even useful for associative purposes, particularly by students exposed to Gross Anatomy for the first time.

As indicated, again in the editor's preface, medical students are almost universally expected to provide themselves with textbooks for each of the anatomical specialties. It seems to this reviewer that such up-to-date, complete sources would be more useful to all students than would be an inserted paragraph incidental to another major subject. In extreme cases it might even provide for the initiate a misleading concept of brevity, simplicity, or even importance of the material so treated. That is to say, there is reasonable doubt that any such text can still be made all things to all students.

This point is particularly well illustrated with reference to the section on Central Nervous System. Here, approximately one-hundred pages are devoted to this most complex topic including its Histology. This treatment might be adequate for purposes of review or reference but is quite inadequate as primary text material and for this reason, its very presence in the volume is of controversial nature. Again, this section apparently follows the middle course between being made really adequate and actually withdrawn.

When any textbook is carried through a number of successive editions, there is often the tendency for authors or editors to insert new features or treatment in part to justify the printing of a new volume. Dr. Goss has studiously avoided this error but in isolated cases, possibly to the detriment of the work as a whole. Segmentation of the liver, for example, is mentioned with respect only to its microscopic (lobular) units; whereas various studies within the last decade tend to emphasize the importance of regional segmentation based on distribution of the duct system. A similar instance might be noted with respect to segmentation of the lung. In this case the subject is considered briefly and with a helpful illustration, but the accompanying text material could have been expanded profitably for the benefit of students not already familiar with the subject.

A minor criticism might be inserted with reference to choice of entries in the bibliography for various sections. While there seems to be an adequate number of recent entries, a number of important recent contributions have not been considered adequately. While it is true that no two people could agree on which entry should be included, it seems to this reviewer that in the subject of bibliography, this section also should be expanded to adequate reference length or eliminated completely.

RALPH N. BAILLIF.

Current Medical References: P. J. Sanazaro, M.D., Editor. Los Altos California, Lange Medical Publications, 1959, pp. 535. Price $3.50.

The medical reference situation has been thoroughly unsatisfactory since the *Quarterly Cumulative Index Medicus* lost its momentum during World War II. It is now consistently late, and the *Current List*, while useful as a port of call in an emergency, is a maddening and time-consuming production to use.

It is highly doubtful, however, that *Current Medical References* is the solution of the problem.

This small book of 535 pages, including a 31-page index, contains, according to the editor's preface, "some of the more useful and significant references to the literature of the past twenty years" in the field of clinical medicine. Most of the references seem to lie within the 1953-1958 period, but even that relatively recent span scarcely fits the definition of current.

The book is diveded into 18 sections, 11 dealing with body systems and special organs and the remainder with general topics and general and special diseases and conditions.

The policy of selecting references which offer comprehensive lists of references for other works is commendable but carried out unevenly. Some of the reviews, such as those on peripheral vascular disease, are reasonably up-to-date (1954-1959), but the review of drug eruptions is dated 1949.

There are also many curious omissions. Spurling's definitive text on the lumbar intervetebral disc is cited under disease of the intervertebral disc, but his later, equally definitive, book on the cervical disc is omitted. Periodic disease, certainly an infrequent condition, has three listings, with a total of 152 references in them. Appendicitis, which is still killing its thousands, also has three listings, with a total of only 36 references. One of the articles listed reports 1,358 cases and another 549 cases. Boyce's book on the subject is not listed, though it is based on more than 6,400 cases and has a bibliography of more than 500 references. Under aneurysms, there seem to be no references to the epoch-making work of DeBakey and his associates at Baylor University. The term fracture does not appear in the index or as a heading in the section on bones, which is chiefly devoted to diseases.

There are only eight references to cold injury, all in the periodical literature. The volume on cold injury in the history of the U.S. Army Medical Department in World War II is not listed, though it has been acclaimed as the most comprehensive book ever written on the subject. Similarly, the volume in this series (*Neurosurgery, Volume I*) which relates the very extensive wartime experience with head trauma is not listed, nor is this experience covered in the references listed from the periodical literature. Finally, all the references under the heading of shock run from 1952 to 1958 and thus do not include the important wartime clarification of this condition. *General Surgery Volume II* in the series just mentioned, which covers the modern concepts and management of this potentailly lethal state, is not listed.

In short, what the publisher says in his foreword about the necessity for compromise in this book is apparent in every page. The basis of the selection of these references is necessarily biased by the, presumably, varied interest, knowledge, and personal preferences of the 140 observers who made up the lists. A book which takes all clinical medical literature, even of the last 20 years, for its province is defeated by its very concept.

In his foreword, the publisher remarks that the book is intended only as a starting point for the investigation of the subjects included. Since the searcher for information must necessarily go to the library to get the listed references, he had probably best stick to the old-fashioned habit of digging out his own information. On the other hand, while the listings in this book are neither comprehensive nor truly current, they represent a remarkably good try. As Dr. Samuel Johnson said to his Boswell, "Sir, a woman's preaching is like a dog's walking on his hinder legs. It is not well done; but you are surprised to find it done at all."

On a casual survey, the typographical errors, in spite of the publisher's advance apology for them, do not seem to be numerous.

ELIZABETH M. MCFERTRIDGE, M. A.

A Cook Book for Diabetics; by Deaconess Maude Behrman, American Diabetes Association, 1959, pp. 172. Price $1.00.

Used in conjunction with the American Diabetic Association's *Meal Planning with Exchange Diets*, or used separately as a caloric guide for diabetic meal planning, *A Cook Book for Diabetics* provides a facile as well as palatable way to vary the diabetic's diet. Recipes and techniques of food preparation allow the diabetic to combine numerous foods and yet come out with a caloric as well as exchange list answer. Deaconess Maude Behrman has literally prepared a menu from soup to nuts with excursions off the beaten path for Passover and Lent, all in all, a real help to the diabetic.

TED BLOCH, M. D.

PUBLICATIONS RECEIVED

Appleton-Century-Crofts, Inc., N. Y.: First Aid: Diagnosis and Management, by Warren H. Cole, M. D., and Charles B. Puestow, M. D., with 16 Contributing Authors (5th Edit.); Medical Care of the Adolescent, by J. Roswell Gallagher, M. D.

Doubleday & Co., Inc., Garden City, N. Y.: Women and Fatigue, A Woman Doctor's Answer, by Dr. Marion Hilliard.

The C. V. Mosby Co., St. Louis: Communicable and Infectious Diseases, by Franklin H. Top, M. D. (4th Edit.).

W. B. Saunders Co., Phila.: Clinical Management of Behavior Disorders in Children, by Harry Bakwin, M.D., and Ruth Morris Bakwin, M. D. (2nd Edit.); A Manual of Tropical Medicine, by George W. Hunter, III, Ph.D., Col. U.S.A., (Ret.), William W. Frye, M. D., and J. Clyde Swartzwelder, Ph.D. (3rd edit.).

Vantage Press, Inc., N. Y.: I Prescribe Laughter, by Thomas Richard Rees, M. D.